4.0 Economic Impacts of the Alternatives

This section provides information on the economic and socioeconomic impacts of the proposed alternatives including identification of the individuals or groups that may be affected by the action, the nature of these impacts, quantification of the economic impacts if possible, and discussion of the tradeoffs between qualitative and quantitative benefits and costs.

The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following statement from the order:

> In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

This section also addresses the requirements of both E.O. 12866 and the Regulatory Flexibility Act (RFA) to provide adequate information to determine whether an action is "significant" under E.O. 12866 or will result in "significant" impacts on small entities under the RFA.

E. O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant." A "significant regulatory action" is one that is likely to:

> (1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
>
> (2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
>
> (3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
>
> (4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

A regulatory program is "economically significant" if it is likely to result in the effects described above. The RIR is designed to provide information to determine whether the proposed regulation is likely to be "economically significant."

This analysis assesses the potential economic and social impacts of implementing proposed management measures to either include the halibut charter fisheries in Areas 2C (Southeast Alaska) and 3A (Southcentral Alaska) in the current halibut IFQ program (Alternative 2) or to implement a moratorium on entry into the halibut guided sport fleet (Alternative 3). These impacts are compared with the impacts of taking no action. A direct allocation to the halibut charter sector would replace the guideline harvest level (GHL) program (the status quo) approved by the Council in 2000, but not yet implemented. Gulf of Alaska coastal communities

are also being considered for a program that would set aside a percentage of halibut charter quota for use in developing community-based charter operations.

Both the GHL and IFQ programs address an open-ended reallocation from commercial to guided sport fishermen, a number of conservation concerns, and provides a measure of stability to the halibut fishery which were identified as problems in the halibut fishery by the Council. The Council identified that an IFQ program would address future allocation issues between the commercial and charter sectors by allowing the marketplace to determine the allocation. The GHL implements measures to slow the growth of the charter fleet's halibut removals, but is not a strict allocation and does not guarantee that the charter sector will be constrained to their specified harvest level.

Description of Fleet, Fishery, & Industry

A description of the charter and commercial halibut fleet, fishery, and industry is provided in Section 3. Baseline information on the number of fishery participants and harvest levels for the 1995-99 commercial and charter fisheries are provided. Projected growth in the halibut stock and charter fishery is also discussed.

Additional information on the commercial fleet can be found in two data series and is incorporated here by reference. A total of 48 community and six summary reports by Shirley et al. (1999) summarize fishery-specific data on holdings of State of Alaska or Commercial Fisheries Entry Commission (CFEC) limited entry permits, sablefish and halibut quota shares from 1995 through 1998, and fishery gross earnings for Gulf of Alaska coastal communities. Community profiles for Southeast Alaska, Southcentral Alaska, Prince William Sound, and Kodiak entitled *Faces of the Fisheries*, also provide a snapshot of coastal communities as of 1992 (NPFMC 1994).

Coastal Community Considerations

Both charter and commercial fisheries are important to the economies and social structures of coastal communities in Areas 2C and 3A. Few data are available to describe the social impacts of charter fishing on coastal communities, however, a recent description of economic and social contributions from commercial fishing to coastal communities are provided in a series of reports contracted by NMFS (Shirley et al. 1998, Dinneford 1999). This issue is explored in greater detail in Section 4.2.11.

The potential effects of displacing charter and commercial fishing effort in Glacier Bay and the social contributions of fishing to communities are described in NPS (1998). Fishing affects community character by flavoring appearance, by influencing the community's degree of prosperity, by attracting certain kinds and numbers of people, and by structuring activities, and to some extent, belief systems of those people. Changes in fishing activities can also affect a community's sense of cohesion. The effects of commercial fishing activity on the cities and villages of the region have long been apparent even to the casual visitor. The fishing lifestyle imparts a cultural identity to communities that is recognizable throughout the world. This identity is apparent along the waterfront areas in towns with large fishing presence. The docks and marinas of fishing communities differ substantially from those port communities that support primarily recreational boating. Recreational businesses, restaurants, and bars also reflect the nature of the fishing lifestyle. Communities for which commercial fishing is the key economic sector exhibit a high degree of cohesion; that is, most of the community members participate in the same or supporting occupations and thus share a common language and lifestyle (NPS 1998).

Potential impacts of Glacier Bay fishery closure

Between 31-46 commercial fishing vessels were displaced as a result of a closure to commercial fishing in Glacier Bay (NPS 1998). These vessels have an associated 188,000-328,000 lb of harvest. Quota share harvests associated with those vessels would be allowed to be taken in other parts of Area 2C. The analysis reports that crossover from displaced commercial vessels into charter fisheries may be limited by lack of economic means by fishermen in some communities to purchase charter vessels or adapt their commercial vessels to charter operations and by some communities to develop tourist-related businesses for accommodations, meals, etc.

The proposed alternative to extend the current halibut IFQ program to the charter sector in Areas 2C and 3A will allocate halibut between charter and commercial sectors, which often occur in the same coastal communities. Losses to one sector may or may not be offset by gains in the other sector. This will not likely occur within a particular community, but is more likely to occur within the affected regulatory area.

Expected Effects of each Alternative on each Sector

The following RIR is presented to describe the effects of the Council's GHL (Alternative 1 - status quo), the IFQ program (Alternative 2), and the moratorium (Alternative 3) alternatives on the charter, commercial, and to a lesser extent, the non-charter angler. As can be seen in the December 2000 list of IFQ alternatives, the alternatives, options, and suboptions result in quite complex interactions among themselves and compared with the GHL preferred alternative from February 2000 (NPFMC 2000a). A staff discussion paper (NPFMC 2000b) reviewed the merits of restructuring the alternatives to facilitate the analytical process, Council review, and decision-making. The restructured alternatives provide the basis for the following RIR. A second staff discussion paper (NPFMC 2000c) reviewed the Coalition's community set-aside proposal.

For analysis of the moratorium (Alternative 3), background information and options for analysis (except for the options for qualification criteria) have been taken from the 2000 GHL analysis. The qualification criteria for the moratorium are identical to those for the charter IFQ program (options under Alternative 2, Issue 3).

Economic considerations for allocating a resource among competing sectors center around the notion of economic efficiency, which is analogous to the idea of maximum net benefits. An efficient allocation occurs when the combination of net benefits to consumers and producers in each sector is greatest. This combination is the sum of net benefits to the primary stakeholders in each user group: consumers of commercially caught halibut, commercial fishermen, sport anglers, and charter operators. Cost-benefit analysis (CBA) is conducted to enumerate the net benefit effects of policy changes on primary stakeholders. Though policy changes also affect secondary markets, such as the processing sector, these effects are not generally treated separately in CBAs because they are captured under a demand analysis for the primary market, provided secondary markets are not distorted (Boardman et al. 1996). Barring distortions in secondary markets, changes at this level are negligible in the net benefit context because they are likely offset by changes elsewhere in the economy (Johnston and Sutinen 1999). This does not mean that policymakers might not have good reasons to consider the effects of policy on secondary markets, it simply means that secondary effects typically carry no additions of benefits or costs that are not counted for in the primary market.

Consumers of seafood determine the value of commercial fish through their willingness to pay. Total net benefits to consumers is the difference between what they are willing to pay, and what they actually pay (the market price) to consume seafood. The net benefits to commercial fishers is the difference between what they receive for supplying fish (ex-vessel revenues) and all costs associated with harvesting the resource inclusive of opportunity cost. Opportunity costs represent the value of the next best business alternative that

a commercial operator could have engaged in with his or her investment. Net benefits to commercial harvesters, and producers in general, are referred to as producer surplus.

Consumer surplus in the recreational sector exists regardless of whether there is a market for the recreational activity, since it is the difference between what anglers are willing to pay to sportfish and the costs incurred to fish. In the case of charter fishing, there is a market for guided trips, and the difference between what a guided angler would be willing to pay and what she does pay (the charter price) is the net benefit, or consumer surplus to anglers. The net benefits, or producer surplus, to charter operators is the difference between their total revenues and their costs, including opportunity cost.

The summed total of consumer and producer surpluses in both the commercial and recreational sector represent the total net benefits that society derives from the resource (although note that in this case there are other uses for halibut that fall outside this particular allocation such as unguided sportfishing, subsistence, etc., and these also contribute to total net benefits). Through a number of modeling approaches, cost-benefit analysis attempts to first identify current levels of net benefits to each market, and then to predict how net benefits would change as portions of the resource are allocated from one sector to the other. In assessing only net *national* benefits, it should be noted that some benefits are excluded in a CBA. For example, the consumer surpluses of foreigners who come to Alaska to sportfish or the benefits enjoyed by the consumers of exported commercial halibut would not be a part of the net national benefit calculation. Neither would the benefits that accrue to foreign producers be counted since this producer surplus is not assigned to the national economy.

It can be the case that the allocation that produces net national benefits is one that greatly favors one sector over the other or that is substantially different from the starting point. As explained by Edwards (1990), so long as net national benefits increase, potential efficiency is gained even if it means a substantial loss of economic surplus to one of the sectors. The "compensation test for judging whether efficiency is increased is whether "winners" of economic value could compensate "losers" and still come out ahead" (Edwards 1990). If the winners do not actually compensate the losers, then the potential for Pareto improvements exist. However, the issue of equity among the sectors should be addressed.

Properly construed, economic efficiency takes equity considerations into account but in practice this rarely, if ever, occurs because equity issues are difficult to render into dollar value terms. Distributional issues thus normally fall outside the bounds of conventional efficiency analyses. Both the commercial and sport fisheries contribute to regional economies. Producers in both sectors purchase inputs such as labor, fuel, vessels and vessel maintenance services, financial services, etc. They both pay taxes that contribute to the well being of communities, and support linked industries such as processors, brokerages, and booking agents. As consumers of sport fishing services, guided anglers also spend monies that contribute to the economic well being of communities that provide charters. National Standard 5 mandates that economic efficiency be considered in the management process, but that it should not be the sole purpose of the allocation process. Identification of the downstream monetary impacts is helpful in revealing the distributional effects of a policy change among the various industries of an economy, and this is the scope of economic impact analysis.

Economic impact analysis (EIA) provides a snapshot of the economic interdependencies of various industries in a regional economy, and therefore allows analysts to model the downstream effects of demand changes for commodities or services. Since opportunity costs and willingness to pay do not enter into the impact assessment framework, the results of an EIA should not be confused with statements of value. It should be noted, however, that the results that yield the greatest value under a CBA may at times imply very disproportional allocations among stakeholders. Because notions of fairness and equity do not enter into the CBA framework, EIAs are useful tools for tracking and identifying the impacts, in revenue and employment

terms, of alternative policies among the various players in an economy. For a more detailed discussion on the differences and appropriate uses of CBAs and EIAs, see Edwards (1990), Johnston and Sutinen (1999), or Steinback (1999).

Data limitations and time constraints prohibit the development of a full complement of models to estimate net benefit and impact assessments of the halibut charter and commercial fisheries. A number of past studies and ongoing projects have been referenced in this analysis to characterize the economics of these fisheries. Where these were presented in the 2000 GHL EA/RIR/IRFA, it was not possible to present more than a fragmented economic view on some aspects of present levels of economic benefits and impact, nor was there enough information to know whether benefits to the commercial sector could offset losses to the recreational sector following an allocation change.

Under an IFQ management regime, the issue of long term net benefits will depend greatly on the transferability of QS and IFQ, regardless of whether the initial allocation satisfies an efficient solution at time of issuance. This section provides a discussion of the economic impacts of the alternatives that the Council is considering for maintaining the status quo, allocating quota shares to members of the halibut charter fishery, or establishing a moratorium. The status quo alternative is presented in Section 4.1, the IFQ alternative is presented in Section 4.2, and the moratorium alternative is presented in Section 4.3. A qualitative description of the expected economic impacts resulting from the issues and options presented in Section 1 are provided and, when possible, quantitative results are presented.

Much of the discussion on the economic impacts of the QS and IFQ transferability options (Section 4.2.5) is taken from a discussion paper funded by NMFS and prepared by Drs. Gardner Brown (University of Washington) and James Wilen (University of California - Davis). Other subsections also rely upon information presented in their paper, and where their work was used they are credited for their contributions. The goal of their paper was to provide the reader a better understanding of the economics associated with the issues without attempting to generate point estimates of the economic impacts of each of the options and sub-options. A similar approach will be used for all of the issues included in this section of the document.

4.1 Alternative 1. Status quo

Status quo in the halibut charter fishery is represented by the interactions of all the programs currently in regulation as well as those approved by the Council, whether or not they have also been approved by the SOC and implemented by the NMFS. This definition of the status quo means that the charter fleet is assumed to be operating under the GHL. The GHL and accompanying management measures was adopted by the Council and submitted to the Secretary of Commerce in July 2000, corrected and resubmitted in February 2001, but has not yet been implemented. The GHL limits the harvest by the charter fleet to 13.05% of the combined commercial and charter quota in Area 2C and 14.11% of the combined 3A quota. Upon reaching that level of harvest, additional management measures would be put in place to keep harvest in the guided halibut fishery from exceeding the specified GHL for Areas 2C and 3A. Other IPHC halibut management areas off Alaska's coast are not covered by the GHL. In addition to the GHL, all other management measures currently in place comprise the status quo. These measures include the two fish bag limit, guide registration requirements, and other State and Federal management requirements placed on the guided halibut charter fishery (NPFMC, 2000).

Implementation of the GHL would be accomplished through a suite of management measures defined by the Council for IPHC regulatory Areas 2C and 3A. These measures would be implemented if the charter harvest increases above predefined levels and will be removed if they fall below the GHL and are no longer necessary. If the GHL is exceeded, 0-20% reduction measures (e.g., trip limits, prohibiting harvest by skipper

and crew) would be implemented in the season following the overage. In years of >20% overage, measures that are projected to achieve 0-20% reduction in charter harvest would be implemented in the following season and measures that are projected to achieve >20% reduction in charter harvest (e.g., annual limits, one fish bag limit in August) would be implemented one year later to allow for verification of charter harvest. The regulations will establish a framework process to review and adjust the management measures in the event of an overage and to evaluate their efficacy to determine if a subsequent regulatory package is necessary. It should be noted that under the status quo, if the charter sector grows and the management measures fail to constrain harvests under the GHL, an open-ended reallocation from the commercial to the charter sector will continue.

Area 2C Management Tools

Required Reduction	Management Tool
<10%	Trip Limit
10% - 15%	Trip Limit
	No Harvest by Skipper + Crew
15% - 20%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 7 Fish
20% - 30%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 6 Fish
30% - 40%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 5 Fish
40% - 50%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 4 Fish
>50%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 4 Fish
	One Fish Bag Limit in August

Area 3A Management Tools

Required Reduction	Management Tool
<10%	Trip Limit
10% - 20%	Trip Limit
	No Harvest by Skipper + Crew
20% - 30%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 7 Fish
30% - 40%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 6 Fish
40% - 50%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 5 Fish
>50%	Trip Limit
	No Harvest by Skipper + Crew
	Annual Limit of 4 Fish
	One Fish Bag Limit in August

Of the measures imposed under the status quo to constrain charter harvests in future years to within the GHL, only bag limits and boat limits appear to limit charter harvests. Each of the measures designated to slow the harvest of charter halibut and estimates of their effectiveness are listed below:

1. the reduction in harvest effected by a bag limit could exceed the actual decrease in halibut that can be kept assuming that effort does not change. This is because effort can be expected to change as anglers react to the change in quality of the average halibut trip. The magnitude of effort change is difficult to quantify and is likely to vary across region according to clientele usage patterns.

2. boat limits would result in the same amount of halibut being harvested on a trip as the bag limit alternatives, and , in fact, may result in higher harvests under the proposed "collective" or party fishing definition.

3. line limits may redirect fishing effort between vessels, but is unlikely to further restrict harvest. A 6-line limit and restrictions of lines to number of paying passengers currently exists in Area 2CA; additional restrictions would limit vessels to a 4-packs or 5-packs. Nearly 90% of Area 2C charters

took four clients in 1998, therefore, a 4-line limit may not result in adequate reductions to stay within the GHL. Area 3A charter vessels traditionally fish up to 27 lines. A floating scale for line limits may address traditional fishing patterns on larger sized vessels. A prohibition of fish harvested by crew may result in adequate harvest reduction to keep the harvest within the respective GHLs. Enforcement of lines "fished" would also be difficult.

4. most charter clients take either two or four halibut in a year. A small percentage of avid anglers exceed that, indicating that annual angler limits will have less impact on total halibut removals compared with impacts on the amount of halibut taken by a few fishermen.

5. only 4% of Areas 2C and 3A trips would be affected by limiting a vessel to one trip each day. If an average trip results in an average harvest, then a vessel trip limit may result in a harvest reduction of 4%. Recognizing the overcapacity of the fleet, clients will likely charter on another available vessel.

6. super-exclusive registration and Sport Catcher Vessel Only Areas may redistribute fishing effort but are unlikely to reduce halibut removals. They may be valid management tools to be included within a LAMP.

7. a rod permit program does not exist in Washington or Oregon upon which to model the Alaska halibut fishery.

8. The sportfish reserve would nullify the constraining effect of the GHL by reallocating halibut from the commercial sector to the charter sector when the GHL would trigger a reduction.

9. possession limits will not be an effective management tool since most fishermen harvest only one or two halibut per year; however, proposed changes would enhance Federal enforcement of current possession limits.

10. prohibiting halibut harvested by the captain and crew may limit the charter harvest to below the GHL; however, enforcement may be difficult on multi-species charters since it would be in effect for halibut only.

As of 1999, the GHL amounts were above the reported catch of the charter fleet in both Areas 2C and 3A. In Area 2C, where the GHL is 13.05% of the combined commercial and charter quota, the charter fleet's percentage of the combined harvest was 8.2% during 1999 (based on corrected ADFG harvest estimates). Given a combined commercial and charter allocation of 9.83 M lb (See Section 3) the charter GHL was estimated to be 1.28 M lb. The charter sector harvested 0.94 M lb in 1999. Based on those numbers the charter catch would need to increase by about 36% over the 1999 harvest levels before any of the additional management measures outlined above would be implemented. The GHL is 14.11% in Area 3A and the combined commercial and charter allocation is 24.65 M lb in 2001 (See Section 3). Given those numbers the GHL in 2001 would be 3.48 M lb. The 1999 charter harvest in 3A was 2.53 M lb, so the charter sector can grow approximately 37% (based on these levels of catch and CEY) before the GHL will trigger management measures that would limit the expansion of the charter fleet.

The ADF&G Sportfish Division was asked to provide the Council an estimate of when the GHL would be reached given the most current information available to them. Mr. Rob Bentz, ADF&G, provided the following:

"... in response to your request for a projection on when the halibut GHL will be reached in Areas 2C and 3A. The GHL is defined as a percentage of the combined charter and longline catch, and the longline quota in any given year is dependent upon annual biomass estimates produced by the IPHC for each of the regulatory areas. Therefore, when the GHL will be reached is a function of future trends in charter harvest and average weight, as well as halibut stock biomass and stock dynamics such as growth and mortality. The Department of Fish and Game does not have the necessary information to predict what the specific biomass estimates will be for future years. Therefore we can not provide a projection as to if/when the charter GHL would be reached or exceeded.

The charter harvest estimates for 2C and 3A from 1995 through 1999 are included in the initial IFQ analysis that was presented to the Council at the February meeting. Based on the harvest trends during this five year period and projections of declining biomass, we feel that significant growth in the charter harvest of halibut is unlikely in the next few years.

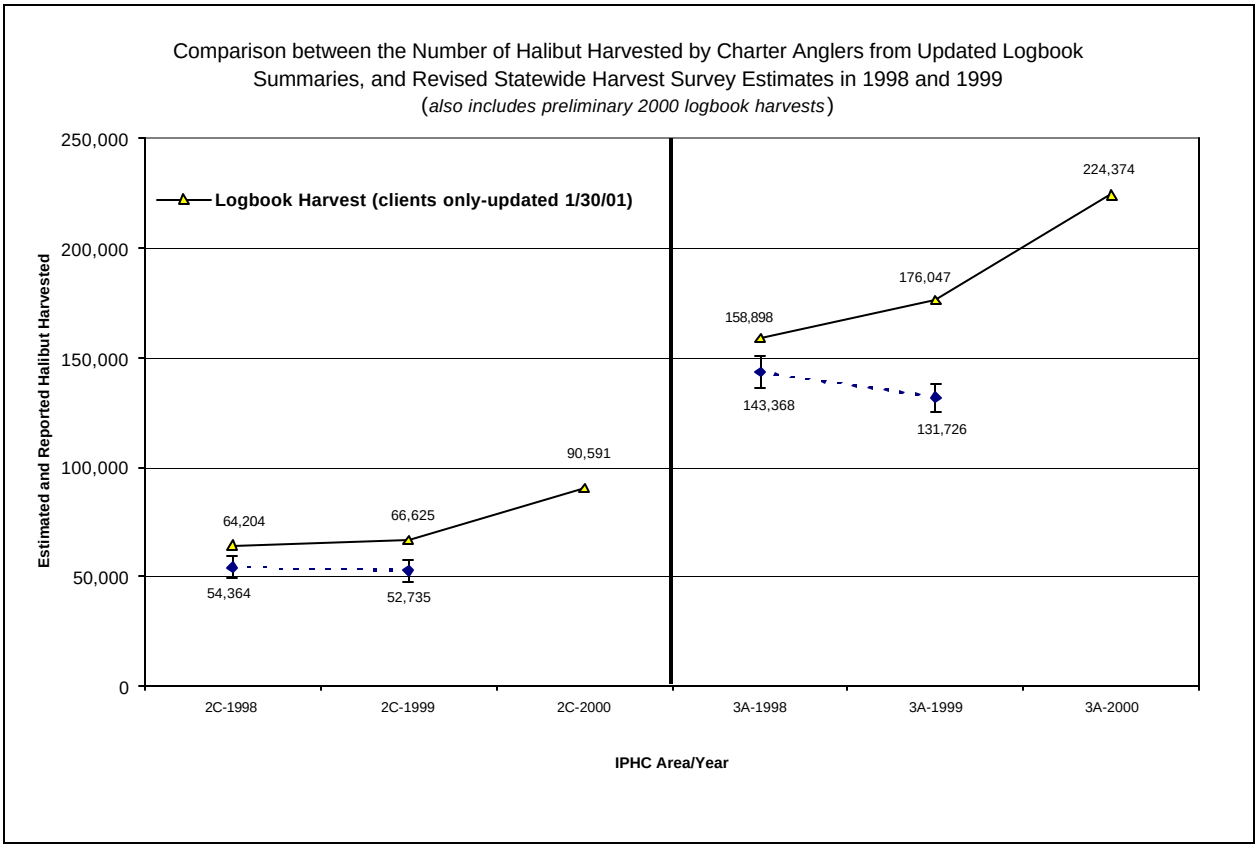
The 1995-1999 estimates are from the statewide postal survey. I can provide you with the 2000 halibut harvest estimates for Areas 2C and 3A. These estimates are based upon preliminary charter vessel logbook forms as of March 7, 2001.

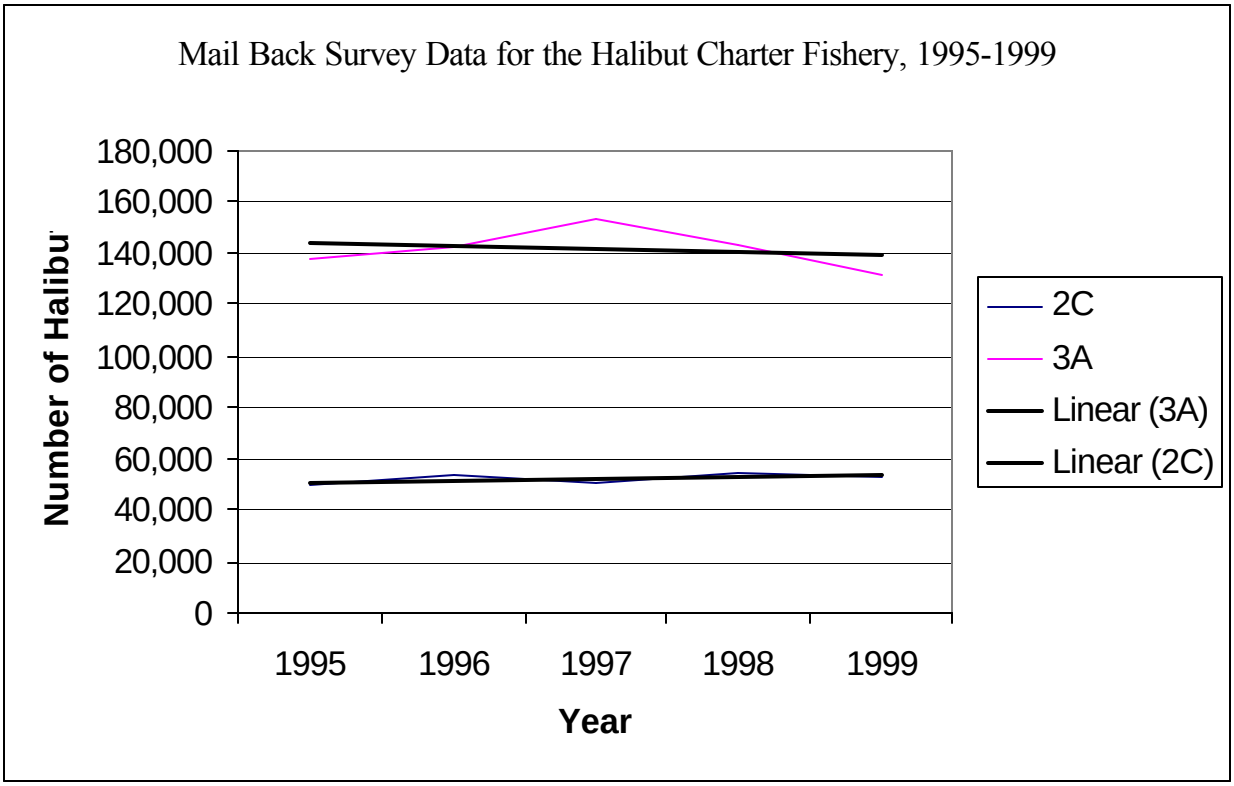
IPHC Reg Area	*Client*	*Crew*	*Total*
Area 2C	*90,739*	*4,003*	*94,742*
Area 3A	*225,586*	*23,222*	*248,808*

I want to stress that the 2000 harvest estimates above are from the charter logbook program. As we stated at the recent Council meeting in February we have discovered some inconsistencies between halibut harvest estimates from the logbook and the statewide postal survey. The number of halibut recorded as harvested in the 1998 charter logbook forms ranged from 11 to 18 percent higher than the charter harvest estimates from the 1998 statewide postal survey. This discrepancy increased to 26 to 34 percent higher in 1999. The 2000 preliminary logbook estimates have continued to escalate. The 1998 and 1999 logbook and statewide harvest survey estimates indicate opposite trends in charter harvest.

We have recommended that the Council use data from the statewide postal survey rather than from the charter logbook program. We are planning to conduct a review of the charter logbook program this fall after the 2000 statewide postal survey data is completed and we have three years of data from each program to evaluate. Until then we recommend using statewide postal survey data instead of logbook data."

Sportfish Division was also able to provide the figures that show the difference between the 1998-1999 mail back survey and the 1998-2000 logbook harvest estimates in a graphical manner. Based on their advice, the downward sloping line from the mail back surveys should be used to estimate the trend. The mail back data was then expanded to include the years 1995-99, and a linear trend line was added to the chart. That trend indicates that it should be several years before the GHL is reached given that there was over 30% room for growth in both Areas 2C and 3A (based on 1999 catch levels) before the GHL would be binding.


Comparison between the Number of Halibut Harvested by Charter Anglers from Updated Logbook Summaries, and Revised Statewide Harvest Survey Estimates in 1998 and 1999
(also includes preliminary 2000 logbook harvests)
Logbook Harvest (clients only-updated 1/30/01)
Estimated and Reported Halibut Harvested
250,000
200,000
150,000
100,000
50,000
0
64,204
66,625
90,591
54,364
52,735
158,898
176,047
224,374
143,368
131,726
2C-1998
2C-1999
2C-2000
3A-1998
3A-1999
3A-2000
IPHC Area/Year


Mail Back Survey Data for the Halibut Charter Fishery, 1995-1999
Number of Halibu
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
1995
1996
1997
1998
1999
Year
2C
3A
Linear (3A)
Linear (2C)

Since the halibut charter fishery has not yet begun operating under the GHL, definitive projections of its economic impacts are not possible. The EA/RIR (Council 2000) developed for the GHL amendment provides as much current information on the expected impacts of the GHL as are available. The major conclusions of the expected impacts of the Council's preferred alternative are excerpted from that analysis and provided next. A qualitative discussion of the economic implications of the GHL, as compared to an IFQ program and a moratorium, is provided in Section 4.4.

Baseline economic data for charter fishery

The monetary contribution that the guided halibut fishery makes to regional economies requires information on angler expenditures, effort (time spent fishing), and the portion of overall expenditures that are attributable to fishing. Information used in this study was primarily derived from a mail survey targeting persons sport fishing on the Kenai Peninsula conducted by Lee et al. (1999), and analysis of that data conducted by Herrmann (1999). Alaskan residents tended to take more and longer trips than non-Alaskan residents, but spent less money per day. Alaskan residents also caught fewer halibut per day (1.69) than non-Alaskan residents (2.04).

Angler expenditures

Angler expenditures are divided into fishing and non-fishing categories. Fishing expenses include items such as tackle, charter fees, and clothing. Non-fishing expenses cover daily living and transportation costs of the fishing trip. The expenditures in this analysis are based on information from the 1997 and 1998 fishing years.

Average angler expenditures for Cook Inlet marine sport fisheries

Overall the average daily travel and living expenditures for Alaska and non-Alaska residents were $44 and $101, respectively. Fishing costs for Alaska and non-Alaska residents were $47 and $138, respectively. The values for Alaska residents were much lower because trips where fishing occurred on private boats and from shore were included in the data as well as charter trips. When the estimates were made for charter trips only, the fishing expenditures for Alaskan ($141 - the charter itself cost $128) and non-Alaskan ($208 - the charter itself cost $142) residents were closer to being equal.

Effort information from the 1998 and 1999 ADF&G logbooks were then combined with the daily fish expense information. Combining these two sources of information assumes that effort data from one year can appropriately be applied to expenditures from another year. The resulting values indicate that about $19.3 million were spent as a result of charterboat fishing for halibut in the Cook Inlet off the Kenai Peninsula, during 1998. Of the $19.3 million, $4.6 million (24 percent) were spent by Alaskan residents and $14.7 million (76 percent) by non-Alaskan residents. About 81 percent of the money spent in Alaska was spent within the Kenai Peninsula. Expenditure estimates for 1999 were similar to those for 1998, because effort estimates from the 1999 log books were similar to those in 1998.

Applications to 3A

Average angler expenditures from the Cook Inlet study were applied to Area 3A as a whole, but required some broad assumptions regarding characteristics of the Area 3A ports. Ports in Area 3A that may well have similar characteristics to the Cook Inlet ports are places like Seward. Charter clients can drive to Seward and it offers the similar living opportunities/cost structures to places like Homer. Yakutat, on the other hand, does not fit as well. Clients would be required to fly into Yakutat to fish, and the cost of living may be higher. These differences mean that applying the Cook Inlet expense structure to Yakutat may yield misleading results.

However, overall it is thought to be reasonable to apply Cook Inlet expenses to charter ports in 3A as a whole, since the Cook Inlet ports (and ports similar to the Cook Inlet ports) make up the majority of charter effort in Area 3A.

Applications to 2C

The distribution of clientele residency, between transportation cost to get to the port, reasons for being in the port (vacation versus fishing) are different for areas 2C and 3A. Each of these factors change the expenditure patterns of charter clients. Because the cost structure of taking a charter trip in Area 3A and 2C are thought to be very different, the expenditure information from the Cook Inlet study has not been applied to Area 2C.

Some basic information on the cost of a charter trip is presented for Area 2C. Those data indicate that the prices paid for a charter trip are higher in Area 2C than in 3A. Trips out of Juneau, for example, are reported to cost $150-$220 per person (85 percent of the trips are for salmon), with the average trip costing $180. Half-day trips have been quoted from $150-$190 per person, but these trips are likely only for salmon, because of the travel time to reach the halibut fishing grounds. In Petersburg, trips were quoted as costing $165-$170 per day.

Data limitations and time constraints prohibit the development of a full complement of quantitative models to estimate net benefit and impact assessments of the halibut charter and commercial fisheries. Data and results collected from a number of ongoing studies that shed some light on the current economic characteristics of the commercial and sport charter halibut fisheries have been considered. Findings relating to the charter fishery are limited in geographic scope to the Cook Inlet portion of the Kenai Peninsula. This information may sufficiently characterize the Area 3A fishery; however, it is not appropriate to extrapolate these findings to 2C. While the information provides only a fragmented description of the economics of the halibut charter and commercial industries, it helps point out the directional implications of benefits and impacts affected by a GHL and/or moratorium.

Demand for commercially caught halibut

Herrmann (1999) reviewed the available literature on demand studies for commercially caught halibut. Applying these results to describe present day conditions is problematic not only because the data relied upon is dated, but also because of recent structural changes in the fishery, effects of which are difficult to isolate. These include adoption of a quota style management regime and drastic increases in the TAC.

To explain and describe current halibut demand at the ex-vessel level, Herrmann begins with a simple model for expository purposes and later updates and adapts a demand model from Lin et al. (1988) to generate more reasonable measures of elasticity, and the inverse of price elasticity: flexibility. Price flexibility, that is the relative change in price resulting by a change in quantity, is useful for predicting how quantity changes affect total revenues to harvesters. Herrmann found commercial demand at the ex-vessel level to be relatively inflexible, meaning that an increase in harvests would be met, all else the same, with a less than proportional decrease in price. This implies that the halibut market is not yet saturated at the ex-vessel level. However, without better information on operator costs, we cannot conclude that increased total revenues due to increased harvests will translate into a net revenue gain.

Estimating demand at the consumer level is theoretically possible given the ex-vessel demand and sufficient information on marketing margins and the price and quantities of the various product forms at the retail level. However, the scarcity of such data precludes accurate estimation of retail level demand.

Participation rate model for recreational halibut fishing off of the Kenai Peninsula

A working paper by Lee et al. (1999b) provides a model that predicts how angler participation changes in response to changes in fishing attributes, such as the cost of the average trip and/or the expected catch and size of halibut and salmon. The results of simulations where price (cost) and catch were varied is presented, as well as elasticity estimates derived from these simulations. Overall, anglers are predicted to respond inelastically to changes in per day fishing costs. For all prices, Alaskans respond more sensitively to price changes than do non-residents. Likewise, changes in halibut catch effect a relatively inelastic response in participation.

Charter Participation Data Information from ADF&G Sport Fish Division, charter associations, and earlier estimates from ISER indicate anywhere from 450 to 600 'active' charter vessels. In 1998, there were 1,085 vessels that participated in the logbook program with saltwater bottom fish activity (581 in Area 2C and 504 in Area 3A). No attempt was made to determine how many of those were 'full-time' operators. That number increased to 1,108 in 1999 (588 in Area 2C and 520 in Area 3A), with approximately 350 of those vessels being unique to 1999, indicating considerable entry/exit in this fishery from 1998-1999.

Earlier estimates from the 1997 study indicated that 402 'full-time' charter vessels, each operating at 50% load factor (operating 75% of available days at 66% seat capacity) could have taken the 1995 charter fleet harvest. Given the 1998 harvest level (an increase of about 30 % over 1995 levels for total Area 2C and 3A pounds harvested, and 15% increase in total numbers of fish harvested), the estimate of full-time equivalent charter vessels would be between 462 and 522 vessels, without taking into account changes in the average weight of fish harvested.

Open Access Concerns of Charter Operators Some charter fishermen have expressed interest in getting protection from additional competition now that the Council has passed the GHL. The current management system (status quo) offers the charter operators no real regulatory barriers to prevent additional competition from entering the halibut charter industry. It is possible that if the Council does not approve an IFQ program for the charter sector, there could be support within the charter fleet to request that the Council move forward with another type of limited entry system. Given previous discussions on this issue, amendments likely to be proposed to curb entry into the halibut charter fleet include a moratorium on new vessels entering the fishery or a license limitation program, which is included as Alternative 3 in this document.

Implementing a limited entry program may provide additional protection for charter operators, but it may result in limiting the charter options available to the clients of charter trips. These fishermen will then be allowed to only contract for trips with operators that meet the criteria defined for the limited entry program. Some charter operators that would have entered the fishery would likely be excluded from doing so under these programs if they are effective. They may also remove some operators that have operated at levels that were insufficient to qualify for the limited entry permit. Guided halibut anglers would no longer have the right to contract with these guides if a limited entry system were imposed that excluded those guides.

4.2 Alternative 2. Incorporate the charter fishery into the current halibut IFQ program

Alternative 2 contains the 11 issues that the Council has selected to comprise a complete charter IFQ program. It will be discussed using economic theory to draw conclusions on their relative economic impacts. Each of the issues/options will be studied on its own merits, because too many possible combinations exist to assemble a suite of complete programs and discuss their economic ramifications. A separate section (Section 4.4) provides an overview of the implications of all three alternatives for guided anglers, including a summary

of the 11 issues for the proposed charter IFQ program. In addition, the main conclusions for each alternative are summarized in Section 4.6.

4.2.1 Issue 1 - Basis for determining total allocation to the charter fleet

The amount of the combined commercial and charter quota that would be reserved for the charter sector is discussed in this section. Option 1 represents the percentages selected as the Council's preferred alternative in the GHL analysis. Option 2 was a rejected alternative in the GHL analysis (NPFMC 2000). Option 3 was added by the Council at their February 2001 meeting.

Option 1. Equal to 125% of corrected average 1995-99 charterboat harvest
(13.05% in Area 2C and 14.11% in Area 3A of a combined charter and commercial quota)

Option 2. Equal to 100% of corrected average 1998-99 charterboat harvest
(10.73% in Area 2C and 9.82% in Area 3A of a combined charter and commercial quota)

Option 3. Equal to 100% of corrected average 1995-99 charter harvest
(10.44% in Area 2C and 11.29% in Area 3A of a combined charter and commercial quota)

Should the Council select the current GHL percentages (Option 1), the overall amount of halibut allocated to the charter sector would not be anticipated to change. However, depending on how the quota is managed, the actual amount harvested may be slightly lower or higher. The harvests by the charter sector would be expected to be less than their total allocation, assuming no trading of quota, since there are strong incentives placed upon individuals to not exceed their allocation. This would lead to individuals slightly under harvesting their allocation, if the allocation were made in pounds. It is likely that fewer halibut would be left under-harvested if the allocation were in pounds, since it would be easier to harvest a specific number of halibut than a set number of pounds of halibut. The sum of the quota left unharvested will likely depend on the charter sector's ability to plan their fishing season and the restrictions on transfers that are imposed. The amount of quota left unharvested reduces the net national benefit, but the amount of the reduction is unknown given our current knowledge base.[1]

If the Council were to select Option 2, the percentage of the combined quota allocated to the charter fleet would decrease (about 18%) in Area 2C and decrease (about 30%) in Area 3A, compared to Option 1. The opposite impact, in absolute pounds, would be realized by the commercial sector. Based on the combined commercial and charter quota of 24.646 M lbs in Area 3A, Option 2 would allocate 1.057 M lbs less halibut to the charter sector than Option 1. Thus, the commercial sector would be allocated 1.057 M lbs more halibut under Option 2. In Area 2C, Option 2 would allocate 228,056 lbs less halibut to the charter sector relative to Option 1 (based on a combined quota of 9.830 M lbs in 2C). The commercial sector would gain the 228,056 lbs if Option 2 were selected over Option 1.

Selecting Option 3 would reduce the allocation to the charter fleet in Area 2C relative to either Option 1 or 2. An allocation of 10.44% in Area 2C equates to 1.03 M lbs (a reduction of 257,000 lbs compared to Option 1 and 28,507 lbs compared to Option 2). In Area 3A, selection of Option 3 would reduce the charter allocation

[1] As discussed under Alternative 1, it is possible that the actual charter sector harvests in Areas 2C and 3A may be below the GHL percentages. Under an IFQ program, the GHL percentages would become strict allocations. Thus, if the expected charter sector harvest is below its allocation, the amount left unharvested could be more significant, especially if transfers between the charter and commercial sectors are restricted. Any quota left unharvested reduces net economic benefits to society. By comparison, the estimated excess quota above the projected charter sector harvest would be allocated to the commercial sector under a GHL.

relative to Option 1, but increase the charter allocation relative to Option 2. An allocation of 11.29% under Option 3 in Area 3A would be 2.78 M lbs (a reduction of 695,000 lbs compared to Option 1 and a gain of 362,300 lbs compared to Option 2) based on the 2001 CEY. Options 1 and 3 use the same base harvest years to determine the allocation, but they differ because Option 1 allocates 25% more halibut to the charter sector than Option 3. Compared to Option 1, Option 3 is more likely to result in an initial charter sector allocation that is binding (at or below the charter sector's harvest level prior to implementation of the IFQ program).

At an ex-vessel price of $1.88/lb, the average price over the years 1996-98, the poundage levels between Options 1 and 2 equate to shifts of about $428,700 in Area 2C and $1.99 M in Area 3A. Poundage changes between Options 1 and 3 represent dollar values of $483,000 in 2C and $1.31 M in 3A. These shifts assume that the price per pound is equivalent in the commercial and charter sectors, to simplify the calculations. In reality this may not be true, but the assumption was made because the data for the charter sector do not exist. With no price effects resulting from the changes in quantity allocated to the sectors, selecting Option 1 (over Option 2) would decrease the revenues to the commercial sector by more than 2.0% in Area 2C and by almost 5.0% in Area 3A. Selecting Option 1 (over Option 3) would also decrease the revenues to the commercial sector, by about 3.0% in both Area 3A and 2C. Compared to the GHL when the GHL is not binding on the charter sector, revenues to the commercial sector under Option 1 (which uses the same sector percentages as the GHL) may be reduced since, under a GHL program, the commercial sector's TAC is reduced by the estimated charter harvest, not the GHL.

Impacts on Processors Processors of commercially caught halibut have often stated that they were negatively impacted by the commercial IFQ program. Before the IFQ program was implemented, halibut were harvested during short openings and much of it would need to be frozen, packaged, and stored until sold because the market was unable to utilize the large amounts of halibut that were being put on the market at one time. Under the IFQ system, harvesters no longer needed to catch the entire halibut allocation during the short openings. Spreading the harvest over the spring, summer, and fall months allowed them to contract with persons other than traditional processors to market their catch. This often meant supplying smaller quantities of halibut to the fresh market, which reduced the role that fish processors had played in getting halibut to consumers. Bypassing or reducing the roles of traditional processors likely reduced the revenue traditional processors generated from halibut, relative to the pre-IFQ days when fishermen had very limited opportunities to sell their catch elsewhere. An ISER study (Knapp 1997) indicated that halibut sold in the fresh market would increase from about 17% prior to implementation of the IFQ program to 33% after implementation. Under a 55 million pound CEY, that equates to an additional 8.8 M lbs of halibut going into the fresh market.

The impacts on the processing sector of adding charter IFQs are unknown. If quota flows into the commercial sector because of changes in the allocations to the two sectors or through transfers then the processors of commercially caught fish will likely benefit from the charter IFQ program. The commercial processors would then have access to additional halibut. The additional profits they would be able to make from processing at least some of that quota, would be a benefit to their operations. If quota flowed into the charter fleet, processors of commercially caught halibut would be disadvantaged. However, the loss of revenues in the commercial processing sector would likely be partially or completely off-set by custom processors and shippers of charter caught fish. For example, a custom processing facility in Homer charges about $0.75 per pound for normal shrink wrap and freezing orders and $1.00 per pound for flash freezing and shrink wrap. The gross margin estimated for commercial halibut processing at the first wholesale level in Areas 2C and 3A ($0.89 to $0.95 per pound) fell within the range presented for the custom processors (NPFMCl, 1997). Therefore, the impacts of quota movement between the two sectors may not substantially impact the processing sector overall (at least through the first wholesale level of the commercial sector), but may change the distribution between the two components of the processing sector. That being said, large quota shifts

between the commercial and charter sectors are not expected to occur, and therefore the overall distributional impacts would not be large.

Information presented in Chapter 3 of this analysis (and taken from Lee et al. (2000)) stated that Alaskan residents taking halibut charter trips spent $8.15 per day on fish processing. Non-residents paid $42.84 per fishing day to have their catch processed. These numbers indicate that processors generate more revenue from halibut that will be shipped out of the State, since many State residents are able to process and freeze the halibut they catch on charter trips at home.

Impacts on Anglers The halibut charter IFQ program will impact anglers if it changes the price they must pay for a charter trip, changes the utility that anglers derive from the trip, or prevents them from chartering a trip with the guide of their choice. A general discussion of these points is included in this section. The implications of the various issues and options for the charter IFQ program for anglers are discussed under each issue. In addition, Section 4.4 of this document provides an overview of the impacts of the IFQ program to guided anglers, including a summary of the implications of each issue.

IFQs may increase the cost structure of the average charter operation. As charter operators determine they need additional quota, they must purchase the rights to that halibut. This would occur if they received no halibut at the initial allocation, their initial allocation was too small, or their operation is growing and additional halibut are required to meet client demand. Buying an input that was obtained at no cost before the IFQ program (at least in the short run when the GHL is not binding) will increase the cost structure of charter operators. These operators will either face reduced profits or losses if they are unable to raise charter prices to include the new costs. Passing the increased costs along to charter clients will result in anglers paying higher prices in Areas 2C or 3A. Alternatively, they may decide to spend more in travel costs and take a charter in an area not covered by the IFQ program (Area 3B or any part of Area 4) where the grounds receive less fishing pressure.

There is also the possibility that charter operators could develop trips with differing characteristics, and charge the angler according to the type of trip taken. This structure could involve a base price for the trip plus a fee for each pound of halibut. Many areas of the country have "trout ponds" where anglers pay by the pound to catch farm raised trout from the owner's pond. While the halibut charter fishery is different in many ways, both examples are the same in that the person selling the fishing experience also owns the rights to harvest a specific amount of fish. The actual harvester of the fish, trout pond fishermen or charter clients, do not have the rights to harvest the fish without the guide or owner of the pond granting them use rights. Under this example, the guide's base fee may be lower than other charter guides that have built the price of halibut into their charter rate and charge a flat rate. Alternative pricing structures would provide anglers the option of paying less if they wish to harvest fewer pounds of halibut than the average angler. Anglers that harvest fewer pounds of halibut could still "fill their freezer" by retaining other bottom fish that are not covered under this program and seldom retained in the past. Some species that could be targeted (certain rockfish or ling cod) may not be able to support this activity as well as other species that are more abundant such as Pacific cod.

The IFQ program may also impact the utility anglers derive from a charter trip. One of the issues that has been discussed involves how charter guides may try to preserve their quota. If IFQs are allocated in pounds, charter operators may try to preserve quota by fishing areas where the halibut are known to be smaller. These "chicken patches" would allow charter anglers to catch their limit of halibut, but they would be smaller fish. Harvesting smaller halibut may decrease the value the anglers derive from the trip. If quota is allocated in terms of number of fish, there would be less incentive for this activity to occur. Charter operators may also be less likely to allow clients to return fish they catch to the sea with the hopes of catching a larger one.

Allowing clients to release halibut would increase the charter operator's fishing costs, while also increasing their halibut usage. The bottom line is that methods implemented to reduce the harvest of halibut would likely benefit charter operators, if implemented throughout the sector, and reduce benefits to guided anglers.

An IFQ program would also limit entry into the halibut charter fishery. Depending how strict the initial allocation is, it may exclude charter operators that have guided in the past or are recent entries into the fishery. The clients of these excluded guides would be forced to select the services of a different operation, find spot on a non-guided boat, or not go halibut fishing. Anglers from out-of-state are unlikely to be able to find a person with a private boat who would take them fishing. Therefore, their options are more likely to be either select a new guide or not go halibut fishing. If they decide not to go halibut fishing, it may well increase effort in other fisheries, such as salmon. An expansion of the impacts on other fish stocks is presented by ADF&G below.

It should be noted that even without an IFQ program anglers using charter vessels are not guaranteed to be able to hire the guide of their choice. Logbook data for 1998-2000 indicates that there was substantial entry and exit in the halibut charter fishery, even before the GHL was passed by the Council. Large turnover in the guide sector indicates that clients may not be able to contract with the charter operator of their choice even under the old open access system. In fact, it could be argued that an IFQ program would lead to a more stable base of charter operators after the initial allocation.

Potential impact on other sportfish stocks

By incorporating halibut sport charters into the existing IFQ system, the Council is effectively limiting entry into the recreational charter fishery for halibut only. The Council does not have the authority, however, to limit participation in charter fisheries for other species in state waters. Given the large degree of turnover in the existing charter fleet, it is reasonable to assume there will continue to be some level of entry into the charter fishery. New entrants will have little option but to target state managed species.

Implementation of IFQs is expected to result in a substantial redistribution of halibut harvest within the existing charter fleet, with the degree of redistribution dependent on criteria adopted for qualification and initial issuance. Recent entrants, for example, may not qualify for all the fish that they have reported landing in the most recent year if their 1998 and 1999 client harvest was considerably lower. Charter operators that will not qualify for adequate quota share or can not afford to purchase additional QS could market their business around other state-managed species or could "stretch" their IFQ by accommodating the demand for "take-home" fish with other species.

State-managed species that could be affected include chinook, coho, pink, and chum salmon, rockfishes, lingcod, Pacific cod, and sharks. Many of these stocks are either fully allocated or have conservation issues. This sets up the potential for "cause and effect management" between two different management authorities.

The charter fleet in Alaska has demonstrated the capability to respond to regulatory changes or changes in abundance by targeting alternate species. Some examples include:

1. Catch-and-release restrictions and closures implemented for early run chinook salmon in the Kenai River in the early 1990s diverted large numbers of Kenai River guides into the marine fishery near Ninilchik. Not only did chinook salmon harvest double, but also halibut harvest jumped from about 2,500 fish in 1988 and 1989 to about 40,000 fish in 1994.

2. Several regulatory actions were taken in Southeast Alaska in 2000 to restrict the marine chinook salmon harvest, including (a) a one fish bag limit applied in the spring instead of the two fish limit in place during the period 1997-1999, (b) nonresident annual limit for chinook salmon was decreased from four to two fish initially and then changed back to three fish in late June (compared with a four fish limit in 1997-1999). Effort and harvest for the spring fishery (late April through early July) were compared with estimates from 1997-1999. Creel surveys indicated that while salmon fishing effort declined in the spring, bottomfishing effort increased about 41% in Sitka and 20% in Craig. At Sitka, there was a 42% increase in halibut harvest and a 92% increase in rockfish harvest over the 1997-1999 average. Similarly, there was a 46% increase in halibut harvest and a 38% increase in rockfish harvest in the Craig fishery. The increases in bottomfishing effort and halibut and rockfish harvest were likely due to anglers filling their bag and annual limits of chinook salmon and then targeting halibut (P. Suchanek, ADF&G, Juneau, pers. comm. 3/6/01).

3. In 1997 ADF&G implemented an inseason reduction in the coho salmon bag limit in most of Cook Inlet from six to three fish. This was followed in 2000 with a regulatory reduction from six to three fish in Cook Inlet. The coho salmon bag limit in Resurrection Bay has remained at six fish daily. The higher coho salmon bag limit in Seward, combined with waning halibut catch rates in August in Cook Inlet, have attracted increasing numbers of guides from the Soldotna and Ninilchik areas.

In Area 2C, the sport fishery for chinook salmon is managed in-season to stay within an allocation. ADF&G monitors the sport harvest with a comprehensive creel survey and port sampling program. Under provisions of a management plan, sport regulations are tied to allocations based on an abundance based management scheme. If there is diversion of effort from the halibut fishery additional restrictions of the chinook fishery might be required, especially when chinook abundance is low.

There is some question whether there is an adequate supply of rockfish or lingcod to support new entrants in the charter fishery. Charter anglers in the Seward fishery have harvested an average of about 10,000 rockfish per year over the last 15 years. About 50% of the rockfish harvest on average is taken by anglers targeting "bottomfish," including rockfish in conjunction with halibut. Prior to severe restrictions placed on the lingcod fishery in 1993, the lingcod harvest at Seward quadrupled from 2,100 fish in 1987 to over 8,000 fish in 1992. Many of the boats initially target halibut, and then fall back on rockfish or lingcod if halibut fishing is poor. It is not unreasonable to expect that some charter IFQ holders would employ the same strategy.

The BOF and ADF&G have conservation concerns for rockfish and lingcod stocks in Southcentral and Southeast Alaska. On-site interviews indicate that over 90% of the Prince William Sound charter rockfish harvest and over 80% of the Cook Inlet charter rockfish harvest are taken by anglers targeting halibut. It is unknown whether current levels of harvest are sustainable, but the BOF has implemented progressively more restrictive rockfish regulations in an effort to discourage targeted harvest and minimize discards. Sport fishery regulations severely limit harvest of yelloweye and other demersal species in the Sitka, Ketchikan, Prince William Sound, and Cook Inlet-Resurrection Bay regulatory areas. In addition, the Board implemented changes in lingcod regulations in Southeast Alaska and set up harvest guidelines for sport take of lingcod in seven areas encompassing Southeast Alaska. If these guidelines are exceeded, regulations to be implemented may include reduced bag limits, annual limits, and minimum size limits. Given the large number of participants in the halibut fishery, even small diversions of effort could result in increases in rockfish or lingcod harvest and exacerbate conservation concerns and allocation conflicts at the State regulatory level.

Diversion of effort would not necessarily be restricted to marine fisheries. There are thousands of small freshwater drainages in Area 2C that produce relatively small runs of adult salmon each year. Diversion of any significant amount of halibut effort to these small systems could result in inseason restrictions or closures to ensure that escapement goals are achieved. There are substantially more opportunities for guiding in freshwater systems in Area 3A, some of which would not require guides with small boats to purchase another vessel. Every major salmon stock in Southcentral Alaska is fully allocated. Increases in guided effort and harvest would elevate existing allocation battles between user groups.

Potential Impact on License Revenues

Currently, the ADF&G Division of Sport Fish spends about $800,000 annually to assess recreational halibut fisheries. To determine the extent to which revenues may be impacted, ADF&G staff queried the statewide postal survey database to determine the proportion of households that only reported having harvested halibut during the years 1997 through and 1999 under the assumption that these people would have only fished for halibut. In these years, 11% of the non-resident households and 6% of the resident households only reported harvested halibut. The number of anglers who may choose not to fish in any given year is unpredictable. The number of anglers who may choose not to fish in any given year if an IFQ program for this sector was implemented is also unpredictable. A range of impacts can be presented, however. If no anglers in these households decide to not fish, then the impact would be $0. If all anglers in these households chose not to fish for any species and therefore did not purchase a sport fishing license, this would have resulted in a maximum reduction of $850,000 to the Fish and Game Fund in 1999.

Suboption: 0-50% of an individual's QS initial issuance would be fixed and the remainder would float with abundance.

The sub-option would keep a percentage (0-50%) of the charter sector's allocation fixed at the initial allocation poundage and the remainder would float with abundance. It provides some protection for the charter sector when the size of the halibut stock decreases, relative to its size at the time of initial issuance.

Should the combined quota decrease in future years, note that stocks are currently at relatively high abundance levels, this suboption would provide relatively more halibut to charter operators when compared to no fixed allocation. Guided anglers may have better access to the halibut resource if this suboption is included in the Council's preferred alternative, depending on other decisions regarding transfer of quota made by charter operators. The intent of this suboption was to provide charter operators with a stabler allocation of halibut as the biomass fluctuates. It would also help to ensure that guided anglers had better access to the halibut resource in years of low abundance. Person supporting this option felt that charter client demand would not decrease proportionally to the decreases in the CEY. Therefore, charter operators would either need to secure rights to more quota in those years or offer fewer trips. With a percentage of the quota being fixed, the swings in pounds of halibut allocated to charter operators resulting from a change in the biomass would not be as large. This means that charter operators would not need to buy as much additional quota in years of low abundance nor sell as much quota in years of high abundance. Charter operators have also expressed fears that they may be in a relatively poor bargaining position to buy QS in years of low abundance. So, they felt that even if low stock values decrease the value of QS, demand in the charter sector would tend to drive the price back up. However given the current information available the market clearing price of quota in the charter sector cannot be estimated.

The Council will also need to address what happens to the fixed quota if it is transferred from the person receiving the initial allocation. There are several options the Council may consider. If it is transferred within the charter sector, the fixed portion of the quota could be part of the transaction. This was the intent of the

person proposing the fixed allocation. However the Council could opt to eliminate the fixed portion of the allocation when it is transferred either to the commercial sector or to another member of the charter sector. If the fixed portion of the allocation goes away once transferred to the commercial sector but remains in place if transferred within the charter sector, it will make the quota relatively more valuable to the charter fleet (all else being equal). This would likely lead to fewer transfers from the charter to the commercial sector. If transfers were made, charter operators would likely attempt to setup a program where the quota that floats with abundance would be transferred to the commercial sector and the fixed portion of the quota would stay within the charter sector. It would make less sense for commercial operators to purchase fixed charter allocations, because the difference between the fixed pounds and variable pounds would be transferred to all QS holders and not just the person making the purchase. Overall, commercial operators would likely be willing to pay less for fixed quota than charter operators that would derive more halibut from holding those rights in years of lower abundance.

The protection gained by the charter fleet through a fixed allocation in years of lower abundance would come at the expense of the commercial sector. However, in years of greater abundance, the charter fleet would forgo some of the increase and the commercial sector would gain additional quota. The allocation forgone by the charter fleet may have gone unused (or they could have leased it to the commercial sector - depending on the transferability restrictions that are imposed) if the demand for charter trips did not also increase with the increases in abundance.

Table 4.1 shows the allocation between the sectors would be impacted by this sub-option at the 50% level. The numbers in the table approximate the current conditions in Area 3A, but are provided for illustrative purposes. We do not know what the initial allocation will be, so it is not possible to generate a table that would provide the actual poundage distribution in the future.

Table 4.1 shows the changes in allocation the charter and commercial sectors would receive based on a 50% fixed allocation, an initial allocation of 20 M lbs and the charter fleet being allocated 14.11% of the combined quota. The first column in the table shows the percentage increase or decrease in the amount of quota allocated, relative to the initial allocation. The first row is 50%, meaning that the allocation would be 50% of the initial year's allocation, or 10 M lbs. Under this scenario, the charter sector would be allocated 2.12 M lbs (second column) and the commercial sector 7.88 M lbs (third column). The fourth column sums the charter and commercial allocation and shows that the total allocation was indeed 10 M lbs. The fifth and sixth columns show the allocation percentage that would result in the charter (21.17%) and commercial (78.84%) fisheries, respectively. These numbers show that the charter sector's portion of the allocation went from 14% to 21% when the combined allocation decreased by 50% and the option to fix 50% of their allocation at the initial allocation amount was chosen. The last two columns report the allocation that would result if the combined quota was also split 14.11% charter and 85.89% commercial (i.e., 100% of the quota allocation would float with abundance). The difference between the second and seventh column show the impact this alternative would have in pounds allocated to the charter sector. The third and eighth columns show the impacts in pounds to the commercial sector.

The allocations listed in Table 4.1 list only the changes in the amount of quota allocated to each sector. Economic theory indicates that there are also price effects associated with changes in the amount halibut on the market. A summary of recent studies done on price flexibility were included in the status quo section. Herrman found that the price flexibility of halibut was relatively inelastic. The more scarce halibut that is, the higher the price it will command in the market. However, decreases in harvest would result in less than proportional increases in prices. Therefore, the charter sector would be allocated relatively more of the halibut in years that it is likely to have a slightly higher price, and relatively less in years when its price is slightly lower (all other things being equal).

Members of the charter sector have always expressed concern over reductions in the amount of halibut they would be allocated in a year as a result of fluctuations in the overall halibut stocks. Their business operations often require that they market their product (halibut fishing trips) at trade shows and through other advertising mediums prior to knowing what their allocation will be that fishing season. This uncertainty makes it more difficult to plan their season. In service oriented business, such as the halibut charter industry, customer satisfaction often determines whether or not a business will be a success. If a charter operation is unable to book a client or cancels the trip after it is booked because of insufficient quota, they may have lost a client forever as well as any positive word of mouth advertising they would have provided in the future. These types of planning logistics appear to be legitimate concerns for the charter industry.

Table 4.1: Examples of outcomes allowing 50% of the charter allocation to remain fixed with a 20 million pound initial allocation and the charter sector being allocated 14.11% of the combined quota.

% of combined allocation relative to the initial allocation amount	Allocation to Charter (million lbs.)	Allocation to Commercial (million lbs.)	Total Allocation (million lbs.)	% of Allocation to Charter	% of Allocation to Commercial	Charter allocation when 100% floats with abundance (million lbs.)	Commercial allocation when 100% floats with abundance (million lbs.)
50%	2.12	7.88	10	21.17%	78.84%	1.41	8.59
55%	2.19	8.81	11	19.88%	80.12%	1.55	9.45
60%	2.26	9.74	12	18.81%	81.19%	1.69	10.31
65%	2.33	10.67	13	17.91%	82.09%	1.83	11.17
70%	2.40	11.60	14	17.13%	82.87%	1.98	12.02
75%	2.47	12.53	15	16.46%	83.54%	2.12	12.88
80%	2.54	13.46	16	15.87%	84.13%	2.26	13.74
85%	2.61	14.39	17	15.36%	84.65%	2.40	14.60
90%	2.68	15.32	18	14.89%	85.11%	2.54	15.46
95%	2.75	16.25	19	14.48%	85.52%	2.68	16.32
100%	**2.82**	**17.18**	**20**	**14.11%**	**85.89%**	**2.82**	**17.18**
105%	2.89	18.11	21	13.77%	86.23%	2.96	18.04
110%	2.96	19.04	22	13.47%	86.53%	3.10	18.90
115%	3.03	19.97	23	13.19%	86.81%	3.25	19.75
120%	3.10	20.90	24	12.93%	87.07%	3.39	20.61
125%	3.17	21.83	25	12.70%	87.30%	3.53	21.47
130%	3.25	22.75	26	12.48%	87.52%	3.67	22.33
135%	3.32	23.68	27	12.28%	87.72%	3.81	23.19
140%	3.39	24.61	28	12.09%	87.91%	3.95	24.05
145%	3.46	25.54	29	11.92%	88.08%	4.09	24.91
150%	3.53	26.47	30	11.76%	88.24%	4.23	25.77

If the fixed allocation was set at 0% then there would be no fixed set-aside. This is represented by the two columns on the far right of Table 4.1. All of the allocation would float with changes in abundance of the underlying halibut stock. In this case, the allocation to the charter sector would always be the same percentage of the combined CEY if no transfers between the sectors take place. Any other percentage between 0 and 50 could be selected by the Council. The magnitude of the impact would then fall between those represented by the 50% fixed allocation and 0% fixed allocation shown in Table 4.1.

On the other hand, the commercial sector also must plan their fishing strategy in advance. Under a commercial IFQ program they have more flexibility regarding how to fish, and while low quotas will likely cause disruptions to their fishing operations, the structural differences between the commercial and charter fisheries may make the planing obstacles less burdensome in the commercial sector.

Crew-caught fish

If crew-caught fish (as logged in 1998 and 1999 log books) are counted in the catch history used in calculating initial issuance of QS, then fish caught by crewmen during charter trips should have to be tagged and logged in the future. If crew-caught fish are not used in determining initial QS, then they should not have to be tagged, only logged in the ADF&G logbook.

Retention of halibut caught during personal use of a charter boat presents another potential issue. This scenario occurs if owners use their boats to take out family or friends, thus leading to possession of halibut which would not be logged (or tagged if a tagging system were to be adopted). Allowing retention has enforcement implications, in that it creates an opportunity for operators without halibut quota, (or not wishing to use their quota) to assert that the fish on board belong to "friends." In effect, if challenged by enforcement personnel, the operator would be asserting that the people on board were not paying for the trip. It should be a simple matter for law enforcement to validate that assertion, through the interview process. Therefore, while potential abuses would be possible, they are not likely, given the penalty action that could be taken against the Coast Guard license of the operator for making false statements to enforcement personnel.

In summary, changing the allocation percentages results in equal poundage shifts between the commercial and charter sectors. Larger overall allocations to a sector will result in members of that sector being issued more IFQ in a year. The increases (or decreases) in pounds a member of the sector will be allocated are proportional to the change in overall allocation. So, if the sector is allocated 10 percent less of the CEY, the allocation to each member of that sector will decrease by 10 percent.

Best estimate of bycatch mortality of charter-caught halibut

Lastly, the Council discussed the biological and allocational impacts of bycatch mortality of charter-caught halibut during initial review. ADF&G provided the following additional information on this issue (R. Bentz pers commun.). Three pieces of information are necessary to accurately estimate total mortality of charter-caught halibut that are released:

1. **The number of halibut released:** Estimates of numbers of halibut released are available from the SWHS and charter logbooks. Estimates of the ratio of kept vs. released halibut are also available from on-site surveys. All of these data sources show that there is substantial variability among vessel trips in the number of fish released. Occasionally the numbers reported are unrealistically or impossibly high. There are substantial differences in the estimates of released fish from the SWHS and from the charter logbook. For example, logbook numbers for released fish in 1998 and 1999 were only 50-67% of the SWHS estimates for Area 2C, but they were 11-48% higher than the SWHS estimates in Area 3A.

2. **The size composition of halibut released:** No estimates are available of the size composition of released halibut on sport charter vessels. About 30% of the Area 3A charter harvest (in numbers of fish) is made up of fish less than 32 inches in length. Charter anglers sometimes release large halibut, but the numbers released are relatively small compared with the numbers of large halibut kept. Since large halibut (over 100 lb) make up only about 5% of the Area 3A harvest, the number of large halibut released is believed to be very small. Given that nearly a third of the harvest is already composed of sublegal-sized fish and the number of large halibut released is very small, it is reasonable to conclude that the vast majority of released halibut are small fish, mostly under 32 inches.

3. **The mortality rates of released fish:** No estimates of release mortality could be found for any halibut species caught on sport gear. Release mortality for summer flounder *Paralichthys dentatus* taken on sport gear was estimated at 6% (Lucy and Holton undated). Estimates for other marine species include 0.8% for striped bass caught on circle hooks (Lukacovic 1999), 4.7% for black sea bass *Centropristis striata* caught on #2 J-hooks (Bugley and Shephard 1991), 2.5% for tautog *Tautoga onitis* caught on sport gear (Lucy and Arendt 1999), 4-16% for redfish in Georgia and Texas, 2% for sport-caught snook held in net pens, and 5% for spotted seatrout in Tampa Bay (www.fmri.usf.edu/fish/release.htm). Hooking mortality studies consistently show that mortality rate is highly related to depth and placement of the hooking wound and handling time. A number of studies show that use of circle hooks results in lower mortality. Given that almost all sport halibut fishing is done with circle hooks, and that most released halibut are quite small, it is reasonable to estimate that hooking mortality near the low end of published estimates, probably around 5% or lower.

Given the lack of data on size composition and mortality rates of released fish, gross assumptions can be made to estimate total mortality of halibut released in the sport fishery. Assuming an average length of 25 inches and corresponding average weight of 4.9 lb net, the release mortality for charter vessels ranged from about 11,000-14,000 lb in Area 2C and about 25,000-32,000 lb in Area 3A in 1998 and 1999. These estimates equal about 1% of the charter harvest estimates in each area during both years. Assuming the sport release mortality is made up mostly of sublegal-size fish, these removals should be treated the same way as sublegal trawl and longline bycatch. These sublegal-size removals are not explicitly deducted from the CEY when setting the setline quota, but rather accounted for by fishing at the current exploitation rate of 20%.

IPHC staff agrees that no actual data exist to permit the estimation of the amount of discards and discard mortality of halibut from the sport charter fishery. Information on the size of discarded fish and discard mortality rates (DMRs), the fraction of fish that die, have not been collected. Staff made some subjective assumptions to estimate halibut discards in this fishery (G. Williams pers commun.):

- The size of halibut discarded is equal to the size of fish landed;
- The number of halibut discarded is accurately reported by the ADF&G Statewide Harvest Survey (SWHS); and,
- The sport charter fishery DMR is lower than that observed in the commercial halibut fishery, yet higher than is achievable under a 'best-case' scenario.

IPHC staff calculated estimates of the amount of discards and mortality of discarded halibut by the sport charter fishery based on data from the SWHS and application of general handling of halibut in the commercial fishery. IPHC calculated estimates of total discards from information reported by the SWHS. The survey reported the number of halibut discarded by both private and charter anglers (Table 3.3 and 3.10 for Areas 2C and 3A, respectively). IPHC calculated the pounds of discarded halibut using the estimates of halibut discarded by charter anglers and the average weight of landed fish from ADF&G dock sampling for charters (1998-1999) and private/charter combined (1995-1997).

The results of the calculations are shown in Table IPHC1, and generally indicate that annual discards have been less than 0.1 million pounds in Area 2C and less than 3.6 million pounds in Area 3A during 1995-1999. While these estimates indicate that discards may be substantial, the presence of two confounding issues suggest that these estimates may not represent the true amount. The first is caused by the use of the landed harvest average weight. It is quite probable that discarded halibut are smaller than retained fish, as the most likely reason for discarding is highgrading, i.e., keeping a larger fish. Without actual measurements of discarded halibut, the actual size of discarded fish is largely unknown but likely smaller than assumed. A second "data issue" is that the source of the number of discarded fish is the SWHS, a mail survey which is completed by anglers following the conclusion of the season. Poor memory and/or reluctance to document

the actual experience probably causes an underestimate of the true amount of discards. The magnitude of each of these factors is unknown but may be offsetting.

To estimate the discard mortality, IPHC has adopted a discard mortality rate (DMR) of 0.10. DMRs for the commercial halibut longline fishery are higher (0.16), but sport-caught halibut are usually retrieved immediately upon being hooked, so the exacerbating effect of long soaks common in the commercial fishery is not present. IPHC mortality studies have shown that DMRs as low as 0.035 to 0.05 are possible under ideal commercial fishery conditions. A sport fishery DMR is probably higher than that due to the use of J and treble hooks, which are more injurious and more difficult to release from a halibut, and also from some unknown amount of gaff wounds. Such wounds occur when a lively fish is brought to the surface and becomes difficult to easily release. An intermediate DMR value of 0.10 was therefore chosen for estimating mortality.

Estimates of discard mortality for the Area 2C and 3A sport charter fishery are shown in the table below. Trends in discards and discard mortality have generally mirrored the sport charter harvest. In Area 2C, the estimates have ranged from 50,000 to roughly 100,000 pounds during 1995-1999. Discard mortality in Area 2C has averaged 7% of the sport charter harvest and 4% of the overall sport harvest during this period. For Area 3A, discard mortality has ranged from 189,000 pounds to 364,000 pounds, and represented 9% of the sport charter harvest and 6% of the total sport harvest.

The IPHC staff considers these estimates to be generally indicative of the overall magnitude, although the data limitations outlined in the previous paragraphs suggest that there is much room for improvement. Information on size composition of the discarded catch is lacking, as is information on overall discard rates and information on the types of hooks used and their relative contribution to discard mortality. Finally, information on actual release condition as is collected in the commercial fishery should be gathered, but this would require some amount of observation. Options include an observer or a video monitoring system.

Table IPHC1. Estimates of halibut discards and discard mortality in the sport charter halibut fisheries in Areas 2C and 3A calculated by IPHC. Mortality based on a DMR of 0.10.

	Area 2C					Area 3A				
Year	**SWHS Area**	**No. of halibut disc.**	**Avg. Wt.**	**Est. Discards (Pounds)**	**Disc. Mort. (lbs)**	**SWHS Area**	**No. of halibut disc.**	**Avg. Wt.**	**Est. Discards (Pounds)**	**Disc. Mort. (lbs)**
1995	Ketchikan	3,564	14.2	50,609	5,061	Yakutat	584	29.3	17,111	1,711
	Pr of Wales Isl.	8,561	17.0	145,537	14,554	PWS	8,465	29.3	248,025	24,802
	Pburg/Wrangell	3,838	22.7	87,123	8,712	North Gulf	11,654	20.4	237,742	23,774
	Sitka	8,220	26.9	221,118	22,112	Lower Cook Inlet	61,557	20.4	1,255,763	125,576
	Juneau	4,268	17.3	73,836	7,384	Central Cook Inlet	35,534	17.3	614,738	61,474
	Haines/Skagway	5	17.3	87	9	Kodiak	7,659	27.2	208,325	20,832
	Glacier Bay	3,788	17.3	65,532	6,553					
	Total			643,842	**64,384**	**Total**			2,581,703	**258,170**
1996	Ketchikan	3,928	20.5	80,524	8,052	Yakutat	1,328	26.8	35,590	3,559
	Pr of Wales Isl.	12,551	17.1	214,622	21,462	PWS	9,493	26.8	254,412	25,441
	Pburg/Wrangell	5,651	29.6	167,270	16,727	North Gulf	10,654	15.8	168,333	16,833
	Sitka	8,954	28.9	258,771	25,877	Lower Cook Inlet	81,291	20.2	1,642,078	164,208
	Juneau	4,692	20.3	95,248	9,525	Central Cook Inlet	40,105	16.9	677,775	67,777
	Haines/Skagway	54	20.3	1,096	110	Kodiak	5,707	30.8	175,776	17,578
	Glacier Bay	5,373	20.3	109,072	10,907					
	Total			926,602	**92,660**	**Total**			2,953,964	**295,396**
1997	Ketchikan	2,506	22.1	55,383	5,538	Yakutat	2,597	35.1	91,155	9,115
	Pr of Wales Isl.	7,895	14.7	116,057	11,606	PWS	12,886	35.1	452,299	45,230
	Pburg/Wrangell	3,108	32.8	101,942	10,194	North Gulf	13,939	26.4	367,990	36,799
	Sitka	13,976	20.8	290,701	29,070	Lower Cook Inlet	88,192	21.3	1,878,490	187,849
	Juneau	4,951	20.4	101,000	10,100	Central Cook Inlet	37,630	15.9	598,317	59,832
	Haines/Skagway	71	20.4	1,448	145	Kodiak	8,280	30.4	251,712	25,171
	Glacier Bay	7,729	20.4	157,672	15,767					
	Total			824,203	**82,420**	**Total**			3,639,962	**363,996**
1998	Ketchikan	3,580	13.8	49,404	4,940	Yakutat	2,185	35.5	77,568	7,757
	Pr of Wales Isl.	8,292	29.1	241,297	24,130	PWS	9,794	28.4	278,150	27,815
	Pburg/Wrangell	2,450	49.9	122,255	12,226	North Gulf	10,087	22.3	224,940	22,494
	Sitka	15,174	31.0	470,394	47,039	Lower Cook Inlet	72,355	18.7	1,353,039	135,304
	Juneau	3,834	20.5	78,597	7,860	Central Cook Inlet	34,538	18.8	649,314	64,931
	Haines/Skagway	0	20.5	0	0	Kodiak	3,426	27.1	92,845	9,284
	Glacier Bay	5,471	20.5	112,156	11,216					
	Total			1,074,103	**107,410**	**Total**			2,675,855	**267,585**
1999	Ketchikan	1,482	23.2	34,382	3,438	Yakutat	0	43.3	0	0
	Pr of Wales Isl.	4,874	12.1	58,975	5,898	PWS	8,495	23.9	203,031	20,303
	Pburg/Wrangell	3,124	37.4	116,838	11,684	North Gulf	5,576	20.9	116,538	11,654
	Sitka	9,154	20.8	190,403	19,040	Lower Cook Inlet	54,174	16.5	893,871	89,387
	Juneau	2,520	13.0	32,760	3,276	Central Cook Inlet	22,528	17.4	391,987	39,199
	Haines/Skagway	22	13.0	286	29	Kodiak	10,295	27.5	283,113	28,311
	Glacier Bay	2,471	13.0	32,123	3,212					
	Total			465,768	**46,577**	**Total**			1,888,540	**188,854**

4.2.2 Issue 2 - U.S. ownership requirements and recipients of initial quota issuance

The overall amount of quota allocated to the charter sector was defined under Issue 1. Issues 2 - 4 will define how quota shares are initially distributed among members of the charter fleet. The initial allocation is often one of the most controversial aspects associated with developing and IFQ system. The initial allocation determines which individuals receive the windfall profits resulting from allocating QS, assuming they are transferrable. In past QS allocations, the Council has elected to allocate QS to persons taking the most financial risk (e.g., owners). However, the initial distribution of QS among the selected group has been fairly broad to more widely distribute any windfall profits.

U.S. Ownership Requirements: The Council is considering U.S. ownership levels of either 51% or 75% for companies, corporations, limited partnerships, or other non-real persons to be eligible to be issued or purchase charter quota. Individuals (real persons) must be U.S. citizens to be issued quota shares or to purchase/lease quota shares in the future. This provision was included to ensure that the halibut charter fishery in IPHC Areas 2C and 3A remain under U.S. control and the economic benefits from that fishery accrue to the Nation.

Determining whether a person or company is eligible to receive quota under these regulations will likely be the responsibility of the Department of Transportation and NMFS. The current IFQ program for the commercial halibut fishery requires QS holders to be US citizens. The regulations are silent on the percentage of a corporation that must be held by U.S. citizens before it may hold QS. For corporations, it would make sense to apply the same U.S. ownership requirements to both commercial and charter QS holders. Currently the regulations do not specify a specific percentage of U.S. ownership for corporations wishing to hold QS. The regulations simply state that it must be a U.S. company that was eligible to document a vessel at the time of initial allocation (1988-90).

Regulations on vessel ownership were changed in the American Fisheries Act of 1998. That legislation implemented a 75 percent U.S. ownership requirement for all commercial and charter vessels operating in US waters, with very limited exceptions. The Act states that transfers of vessels measuring 100 feet or greater (in registered length) will be more closely scrutinized by MARAD. Because the charter fishery uses vessel less than 100 feet in length they will fall under different regulatory requirements. Vessels that are less than 100 feet in registered length must also meet the same ownership and control standards, but were placed under the authority of the Secretary of Transportation. However, the option under consideration here applies to quota ownership and not fishing vessels.

Keeping the U.S. ownership requirements for quota the same in the commercial and charter sector is logical, if the Council wishes to allow quota transfers across the two sectors**. Given that the current commercial requirements are linked to an old vessel ownership definition, the Council may wish to consider updating the U.S. ownership requirements for holding QS in the commercial sector and implementing the same requirements in the charter sector**. Updating the commercial ownership requirements may require that corporations currently holding QS are "grandfathered" at their current ownership levels. These corporations would not be allowed to expand their QS holdings until they came into compliance with the revised QS ownership requirements.

Issuing QS to only U.S. citizens may increase the net benefits (producer surplus portion) to the Nation since profits would be less likely to be taken out of the U.S. economy by the QS holders. The actual amount of foreign ownership in the charter fleet is thought to be very small (if it exists) though that cannot be verified with the data currently available. Given our assumption there is little foreign ownership in the charter sector,

the impact of restricting initial allocations to U.S. vessel owners should have a relatively small impact on producer surplus.

The analysis assumes that the ownership requirements would also apply to future transfers of the quota as well. If that is the case, then this provision may not have much of an impact on the initial allocation, but it would ensure that ownership of the halibut resource stays in the hands of U.S. citizens in the future.

Limiting QS ownership to U.S. citizens should not substantially impact consumer surplus. Consumer surplus would stay the same assuming that U.S. consumers are able to still take a trip of the same quality for the same price. In other words, this provision should not have a great impact on competition within the charter fleet. It should also be noted that since residents of other countries vacation in Alaska and take charter trips for halibut, their consumer surplus should not be included in the calculation of net National benefits.

Classes of Persons Eligible for Initial Quota Allocation:

Option 1. Charter vessel owner - person who owns the charterboat and charterboat business

Option 2. Bare vessel lessee - person that leases a vessel and controls its use as a charterboat for this fishery. May operate the vessel or may hire a captain/skipper. Lessee determines when the vessel sails and by whom captained. **When there was no bare vessel lease, the quota would be allocated to the vessel owner.**

Documentation will be required to verify that the charterboats controlled by owners or lessees were operated by individuals with appropriate USCG licenses.

Allocating quota to only vessel owners and those persons operating a vessel under a bare boat lease, excludes allocating quota to crew members, hired skippers, and lodge owners that contracted with charter boat owners to take clients of the lodge halibut fishing. Under the commercial IFQ system for halibut, crew members and skippers were also excluded from the initial allocation of QS. This was a contentious issue in the commercial sector and after consideration of a number of stakeholders, the Council chose to grant rights to harvesters who have made capital investments in the fisheries versus those who have traditionally participated by providing labor.

A number of stakeholder classes as well as other methods for allocating quota could have been selected by the Council, and these are well documented in *Sharing the Fish* (NRC 1999). Under the comprehensive rationalization discussions held by the Council over the past several years, options considered ranged from auctioning quota to the highest bidder to, allocating quota to skippers and crew members, allocating quota to all U.S. citizens, and basing the allocation on a lottery system. All of these methods have been rejected in the past because they are either illegal under current law or they were deemed to be inferior methods of distributing quota to the persons felt to be most deserving. When the Council considered potential allocation mechanisms for halibut charter IFQ, many of the same alternatives and issues were raised during discussions by the various committees and rejected by the Council. The Council then decided to focus on the options of allocating quota to vessel owners and persons that held bare boat leases of charter vessels that meet a specified minimum qualification criteria (Issue 3). While granting harvest rights to vessel owners and lessees seems to mirror the path taken in the commercial IFQ fishery, one noteworthy distinction is that the principal harvesters in the charter fishery are anglers, and not vessel owners or lessees. While charter operators are associated with the harvesting 'sector' in the guided sport fishery, their role up until now has been one of providing guiding services to anglers. The options under Issue 2 would confer harvesting privileges to a stakeholder class other than those thought of as the guided sport fishery's traditional harvesters, representing

a departure from the Council's past rationalization programs where allocations were made to harvesters, with the exception of the CDQ program. Similar to the commercial IFQ program, granting quota shares to charter operators (as opposed to the guided angler) provides a mechanism for ensuring the charter sector's harvest stays within its allocation and encourages long-term stewardship. Further discussion of this issue is provided in Section 4.4.

A number of data related problems, fleshed out in detail under Appendix III, frustrate attempts to distinguish and count individuals who may have operated in the fisheries as lessees. While such individuals may be able to document their participation as lessees at time of implementation (depending on the requirements), it is not possible to distinguish lessees from other participants such as owners and hired skippers given the available data. For purposes of this analysis, we rely on reasonable estimates of vessel owners and associated vessels when considering initial issues.

Table 4.2 shows the number of vessel owners and vessels identified from the Logbook database.

	2C		3A	
	Owners	**Vessels**	**Owners**	**Vessels**
1998 Logbook	412	604	434	512
1999 Logbook	459	677	465	584

The figures from Table 4.2 represent increases from the number of active businesses and vessels reported under the status quo discussion of this section and those figures reported in Section 3, which are attempts at identifying numbers of participants based on bottomfish effort. However, the Council chose a more inclusive baseline from the logbook database because of reporting problems such as records in the data that indicate substantial halibut harvests despite null fields for the bottomfish effort categories.

> ADF&G Sport Fish Division Staff continues to caution the users of Logbook data that its accuracy has yet to be verified, and until that can be accomplished the numbers generated from its use should take that uncertainty into account.

Staff plans to assess current participation regarding the initial allocation in a supplement to this analysis. We are interested in assessing how many initial issuees may already be out of this fishery. The GHL analysis indicated a 50% turnover in licensees between 1998 and 1999.

Owners v. Lessees: The Council has asked for an outline of the criteria that could be used to determine whether an individual participated in the charter fishery as a lessee, versus as a hired skipper. The following discussion provided by NMFS RAM Division staff describes the processes used at implementation of the commercial IFQ program to both identify and award QS to lessees.

In the commercial IFQ program, the Council decided that lessees should qualify. Further, they decided that lessees whose agreements with the vessel owner(s) were not reduced to writing should qualify. To implement this Council policy, the Secretary adopted regulations [at 50 CFR 679.40(a)(2)(C)(iii)] that established the evidentiary standards that would apply when an applicant claimed eligibility premised on a lease of a (qualifying) vessel. The regulations provide:

> Vessel Lease. Conclusive evidence of a vessel lease will include a written vessel lease agreement or a notarized statement from the vessel owner and lease holder attesting to the existence of a vessel

> lease agreement at any time during the QS qualifying years. Conclusive evidence of a vessel lease must identify the leased vessel and indicate the name of the lease holder and the period of time during which the lease was in effect. Other evidence, which may not be conclusive, but may tend to support a vessel lease, may also be submitted.

When implementing this regulation, RAM had little difficulty in determining whether "conclusive" evidence of a lease existed (by examining the document itself or by reviewing affidavits submitted by the parties). However, a problem arose when both the vessel owner and the person claiming to be a lessee submitted conflicting claims and when neither could produce the "conclusive" evidence set out in the regulations.

In those instances, RAM would solicit as much information as possible from the parties, prepare an Initial Administrative Determination (IAD) based on that information, and inform the parties of their right to appeal to the NMFS Office of Administrative Appeals (OAA). More than 100 "conflicts" were the subject of IADs. And although many were decided by the IAD or settled by agreement between the parties, more than 40 were formally adjudicated by the OAA. In a series of decisions on these conflicts, OAA set out seven "factors" that informed its decision, including:

1) how the parties characterized their business arrangement at the relevant times...
2) whether, and to what extent, the claimed lessee had possession and command of the vessel...
3) whether the claimed lessee directed the fishing operations...
4) whether the claimed lessee had the right to hire, fire, and pay the crew...
5) whether the claimed lessee was responsible for the operating expenses...
6) whether the claimed lessee treated the fishing operations as a business for tax purposes...
7) whether the claimed lease had a set or guaranteed term...

In short, consistent with Council intent, NMFS attempted to determine which party acted as an entrepreneur with respect to the fishing operations. In instructions to applicants, RAM suggested that documentation to prove that a lease existed would include the lease itself (if such existed) or "...other proof that the lessee did in fact control the disposition of the vessel, its gear, crew, and catch..." Applicants were told that examples of such "other proof" could include:

- the receipts for purchases of the license(s) used aboard the vessel...;
- tax returns that show that you claimed a business deduction for vessel lease expenses..;
- tax returns or other documents that show that you paid the crew expenses...; and/or
- other authentic and contemporary documents demonstrating the nature of your investment in the fishing operation...

One program element that aided the process of choosing between the owner and the claimed lessee was the fact that no "interim" Quota Share was issued to either party until a final agency action was taken. This increased the incentive to achieve private agreement and reduced the incentive to pursue contradictory claims through the adjudications process.

Under the current structure of the laws, it is not clear that the parties could be denied "interim" shares while they pursued their claims. Under the Administrative Procedures Act, the government may not deny an applicant the opportunity to continue engaging in an activity until "due process" has been provided. This has

required NMFS to allow applicants to receive interim licenses under the LLP and there is a good chance that some sort of "interim" QS would need to be provided to applicants under the charter IFQ program. Therefore the data are not currently available to determine the number of persons that held a bare vessel lease and would qualify under Option 2, but that should not preclude the Council from selecting that alternative. NMFS RAM division is confident that they can over come that current data shortfalls in the application process.

Coast Guard license requirement

Vessel operators of the type employed in this fishery are required to hold a Operator, Uninspected Passenger Vessels (OUPVs, commonly known as "6 –pack") or better license. OUPVs are issued for a period of 5 years. Periods if issuance for other licenses can be of different lengths. The USCG maintains an electronic database of all licensed mariners. Since at least 1995, Alaskan charter vessel operators have also had to register annually with the state of Alaska as a fishing guide. Fishing guides have not been required to provide proof of an USCG license at the time of registering. Charter vessel owners have been required at least since 1995 to register as a Sport Fishing Services Business.

Since 1998, charter vessel owners have been required to record catches for each vessel in ADF&G logbooks. The 1998 logbook had a block for USCG license number of the operator for each trip, but that requirement was dropped by the state in 1999.

Annex II describes Alaska State charter vessel/operator registration and reporting requirements, and past IPHC reporting requirements in more detail. Under the suboption, the issue is whether the Coast Guard should confirm that all QS initial issuees employed USCG licensed operators when they harvested the halibut that will result in their receiving QS? The goal of such a requirement would be to keep persons who violated licensing regulations from receiving a windfall allocation of QS.

Section 4.2.3 provides options for the past fishing history needed to qualify for initial QS. The resulting number of qualifying owners range from 655 owners fishing 988 boats to 1107 owners fishing 1439 boats. A review by CG staff of ADFG registration and log book requirements indicates that for 1998 and 1999, there is insufficient documentation to correlate registered charter vessels, owners, fishing activity and operators of the charter vessels. As described in section 4.2.3, the ADF&G registration and reporting system simply did not have a goal of tracking persons across the data sets collected for vessels and businesses.

If the Council desires for CG staff to confirm that all potential initial QS issuees complied with CG licensing requirements, it will have to require further documentation from those potential issuees. Potential issuees would have to correlate the fishing history they are using to qualify for QS with the operators who skippered the vessel on those trips. The CG would require full name and either date of birth or social security number (SSN) of the operator to confirm whether he/she held an appropriate CG license at the time of the fishing trip.

4.2.3 Issue 3 - Participation requirements to be eligible for the initial issuance of charter quota

Initial allocations will be based on the participation history of a person and not vessel activity. Any charter boat owner (or perhaps the holder of a bare vessel lease) not meeting the criteria selected by the Council, will not be issued quota at the time of initial allocation. Persons not meeting the qualification criteria would be required to purchase QS or transfer (lease) IFQs to participate in the halibut charter fishery, if the Council and the SOC adopt an IFQ program for halibut.

The list of options being considered by the Council to determine which persons qualify for a quota allocation was discussed in Section 1. In general, the vessel owners or bare boat lease holders are required to have participated in the fishery in the recent past. The list complete list of options under consideration is repeated below:

Option 1. Initial issuees who carried clients in 1998 and 1999 and who submitted ADF&G logbooks for an active vessel[2] (as received by ADF&G by February 12, 2000)

Option 2. Initial issuees who carried clients in 1998 or 1999 and who submitted ADF&G logbooks for an active vessel (as received by ADF&G by February 12, 2000)

Option 3. Initial issuees who carried clients prior to June 24, 1998 and who submitted at least one ADF&G logbook for an active vessel (as received by ADF&G by February 12, 2000)

Option 4. Initial issuees who carried clients four out of five years between 1995-1999 as evidenced by IPHC, CFEC , and ADF&G business and guide documentation for 1995-99 and submitted logbooks for an active vessel in 1998 and 1999

Option 5. Initial issuees who carried clients four out of five years between 1995-1999 as evidenced by IPHC, CFEC and ADF&G business and guide documentation for 1995-99 and submitted logbooks for an active vessel for either 1998 or 1999

Option 6. Initial issues who carried clients three out of five years between 1995-1999 as evidenced by IPHC, CFEC , and ADF&G business and guide documentation for 1995-99 and submitted logbooks for an active vessel in 1998 and 1999

Option 7. Initial issues who carried clients three out of five years between 1995-1999 as evidenced by IPHC, CFEC and ADF&G business and guide documentation for 1995-99 and submitted logbooks for an active vessel for either 1998 or 1999

Suboption: Require that initial issues be currently participating (meeting all legal requirements including filing a logbook) during the season prior to final Council action (currently May-September 2000) and claimed trips must have been under the operation of a person holding a valid U.S. Coast Guard license.

The number of persons meeting the criteria listed in the seven options, and therefore the number of persons eligible to receive an allocation at the time of initial issuance, is difficult to determine. Several factors that make determining the actual number of qualifiers difficult (if not impossible) are discussed in the paragraphs that follow in this section. That being said, our best estimates of the number of qualifiers will be provided in this section for only the first two options. The other options include qualification requirements in addition to those included in Options 1 and 2. Therefore, the number of potential qualifiers in Options 3 - 7 are less than the related criteria in Options 1 and 2. Because those options require **persons** to be tracked across data sets that have been developed more for purposes of documenting vessels, and because fields identifying persons vary across data sets depending on how personal and company names are treated, the number of qualifiers

[2]Active vessel is defined as having turned in one ADF&G logbook page with positive catch or effort. ADF&G Guide and Business registration is required of bare vessel lessees only. Neither CFEC vessel registration nor IPHC licensing would be required of bare vessel lessees.

cannot be estimated for this analysis. Appendix III provides a detailed description of the relevant data sources excerpted from the Preliminary Review of Halibut Charter IFQ Analysis, submitted for the October 2000 Council meeting.

If the Council adopts one of those options and the SOC approves the amendment package, applicants would need to provide the appropriate documentation to prove their qualification. During preliminary review of this analysis at the June 2000 Council meeting, the SSC addressed these data problems and commented on the limitations. The text below is excerpted from the SSC minutes.

> *We note that datasets on personal identifiers and data on potentially qualified IFQ recipients are incomplete. These data problems could create a significant obstacle to identifying the population of participants and associated history in the fishery. It was noted in the Analytical Design document that:*
>
> *"While a definitive count of vessels and owners can be produced from available data, it will not be possible to match these data to the options under Issue 4. Further, it will not be possible to match those missing records to harvest history qualification criteria for the options under Issue 3."*
>
> *These data shortcomings will handicap the analysis in terms of identifying appropriate strata for the population, impacts on quota price and rents, and in determining the probable outcomes of the distributional effects on various groups in the recreational sector, other fishing sectors, and localities.*
>
> *While these data constraints will complicate the analysis, and most probably result in a great uncertainty over the pool of participants under any given alternative, the SSC believes that these problems can result in a limited but acceptable analysis and EA/RIR, if staff is given sufficient resources and time to construct the analysis.*

Current data limitations should not preclude the Council from selecting options if they are superior to others under consideration, simply because the exact number of qualifiers cannot be determined with the existing data. The information provided in this analysis, public comment, and the knowledge of each individual decision maker may be adequate to make an informed choice.

Options 1 through 7 are predicated on combinations of ADF&G logbook documentation in addition to other data sources. Therefore, the logbook database represents the starting point for establishing the potential number of participants in the halibut charter fishery. Though the language in each option states that at least one logbook entry must be submitted, the Council has expressed some concern over the type of participation that should be considered, that is, whether a submitted logbook form pertain to halibut versus fishing for other species. At its October 2000 meeting, the Council opted to consider logbook records for all vessels deemed active, irrespective of the species targeted. This decision stemmed from several problems in the logbook database reported in the preliminary analysis, which makes it difficult to ascertain halibut effort.

It is important to note that the numbers of vessels and owners listed in Table 4.3 likely overestimated the number of vessels and owners reporting halibut landings in the logbook data. Transposed vessel identifiers in some of the logbook entries would indicate there were two vessels that were fishing when only one participated. Review of the logbook data indicates that these types of entry errors do exist. The extent of the problem is unknown. However, since the 1999 logbook data has over 30,000 entries for halibut, if errors were made in one out of every 300 vessel identifiers it could result in 100 too many vessels being reported

The 1998 and 1999 logbook data were collected and maintained **on a per vessel basis**, identified by ADF&G number. For each vessel in the logbook with halibut charter participation, a corresponding business/owner name was matched from the CFEC vessel registration file for corresponding years in order to identify **owners** whose vessels participated in the logbook program. These names form the basis for the qualifier dataset, since all options under Issue 3 are predicated on some variant of logbook submission. These individuals and/or businesses must then be cross referenced with the other mandatory sources of documentation (CFEC registration for 1995 - 1997, IPHC licensing for 1995-1997, and ADF&G business and guide registration).

The reader is reminded that while the following documentation is required of charter operators, it does not prove their participation. Persons claiming eligibility under the selected criteria would have to show how they were affiliated with the vessels from which they derive participation history and then document the vessel's compliance with the appropriate programs. Owners would have to show they owned their vessels at time of recording logbook trips, and then show that the vessels for which they claim historical participation from 1995 through 1997 be registered with both CFEC and IPHC. The ADF&G guide and business registration would only be required of bare vessel lessees who have never been required to be registered with CFEC and IPHC.

A number of combinations of catch and effort criteria could be used as a starting point to determine the QS allocation. The Council elected to base qualification on alternatives that rely on catch and participation. Table 4.3 shows how Options 1 and 2 would limit the number of qualifiers. The table begins with the total number of persons that chartered clients who harvested halibut in 1998 and 1999. These numbers would not completely capture the intent of the Council if they elect to include bare vessel lessees in the initial allocation. Because leases are private contracts entered into by individuals, information on the number of vessels that were leased in this manner is not available.

Table 4.3: Projected number of initial QS recipients under each qualification option.

Participation Criteria	**Projected Number of Qualifiers**			
	2C - Owners	**2C - Vessels**	**3A - Owners**	**3A - Vessels**
Option 1: 1998 and 1999	–322	–544	–333	–444
Option 2: 1998 or 1999	–539	–765	–568	–674
Option 3:	539 > **x** >367	765> **x** >533	568 > **x** >366	674> **x** > 427
Option 4:	< 322	< 544	< 333	< 444
Option 5:	< 539	< 765	< 568	< 674
Option 6:	< 322	< 544	< 333	< 444
Option 7:	< 539	< 765	< 568	< 674

Source: ADF&G Logbook data

Option 2 allows more persons to qualify for the initial allocation compared to Option 1. Option 2 only requires a vessel operator to carry clients and complete a logbook once during the 1998-99 time period. Option 1 requires a minimum of two logbook records, one during each calendar year 1998 and 1999. If information on bare vessel lessees were included in Table 4.3 it would likely inflate the projected number of qualifiers, slightly, although it is possible that the estimates of qualifiers could change in either direction. For example,

if some vessel owners who operated their own charter vessels also leased these same vessels at some point during the qualifying period, the corresponding lessees could potentially qualify based on different trips made with the same vessels. However, it is also possible that there were owners among the qualifiers listed in Table 4.3 who never operated their vessels (nor ran the charter business even if they hired a skipper to operate the boat), but instead leased their vessels throughout the entire qualification period. If a single lessee leased several boats in this fashion while hiring skippers to operate some of his vessels, then only the lessee would qualify, and not the owners.

Because Option 4 and Option 6 use the same qualifying criteria except that initial issues must have carried clients in 4 of 5 years from 1995-99 under Option 4 and 3 of the 5 years under Option 6, it is expected that more persons would qualify as initial issuees under Option 6. However, we are unable to determine the actual number given the data that are currently available. The same is true for Options 5 and 7. They have the same qualification criteria, except that Option 7 only requires that an initial issuees carried clients in 3 of the 5 years from 1995-99.

Should the Council elect to adopt the suboption requiring participation in the year prior to final Council action, then the number of qualifiers for the initial allocation will be reduced. The magnitude of the reduction cannot be determined for Options 3 through 7. Estimates of the amount of the reduction can be made for Options 1 and 2.

Consideration of a Moratorium The Council added a alternative to consider implementing a moratorium on new entry into the charter fishery, if it elects not to proceed with IFQs. Information in the tables above provide information on the number of potential qualifiers under a moratorium, since the same qualification criteria were selected for a moratorium program as was used to determine who would qualify for QS. Additional information on the moratorium under consideration by the Council is presented in Section 4.3.

Consideration of a Unavoidable Circumstances ("Hardship" claims)

In the commercial IFQ program, the Council opted not to include any provision for "unavoidable circumstances." Its rationale was that: (1) one could qualify with only one landing over a three year period and (2) QS awards were based on the best five of six or seven years (for sablefish and halibut, respectively). Thus, any temporary "unavoidable circumstance" was accommodated.

But the proposed qualification criteria under Alternative 2, Issue 3, would only have two qualifying years (1998 and 1999). Because an eligible applicant's entire allocation would largely depend on those two years, it may be desirable to accommodate, to some degree, those whose intent to participate was thwarted by one or more "unavoidable circumstances." If the Council so chooses, adapting the language used in the LLP program (noted below) may be appropriate, insofar as it tries to be both flexible (as to the allowable circumstance) and rigorous (as to the nature of the showing that an applicant must make).

A provision to recognize "unavoidable circumstances" (in lieu of actual recorded fishing activity) as a way to gain eligibility for initial issuance of QS could be included in the eligibility criteria. Generally speaking, if an applicant who would not otherwise be eligible for QS (or the amount s/he feels s/he is entitled to) can make a special showing to NMFS that s/he would have fished (provided charter opportunities) but for some "unavoidable circumstance," credit for the activity could be hypothecated and the QS issued.

In the LLP program, "unavoidable circumstances" are considered as a legitimate way to obtain credit toward having a license (or an endorsement to a license) issued to an applicant. The elements of the requirement, as

well as a brief explanation of them, was included in the instructions sent to applicants for LLP licences, and read as follows:

> Applicant claiming eligibility premised on special or "unavoidable circumstances."
>
> The LLP regulations allow an applicant to claim a license [or one or more endorsement(s) thereto] if s/he can demonstrate that an intent to deploy a vessel in a fishery was frustrated by some "unavoidable circumstance" that was unique to the applicant (or the applicant's vessel). This is not intended to be a catch-all way of obtaining licenses, however ... this provision is only intended to apply when the circumstances are truly unique. For instance, a storm in the Bering Sea that kept the whole fleet in port is not a circumstance that would qualify an applicant for credit. Likewise, a freely-made decision to keep the vessel in port during an opening would not qualify.
>
> Therefore, to support a claim of eligibility for a license [or one or more endorsement(s) thereto] under this section, the applicant should supply evidence that supports the claim that s/he:
>
> > a) had an intent to deploy a vessel in the fishery(ies) [*as evidenced by, for example, contemporary receipts for fuel, bait, food, etc., log books that show that the vessel actually left her home port, copies of appropriate licenses and permits, product sales contracts, etc.*];
> >
> > b) that the intent to deploy the vessel was thwarted by one or more circumstance(s) beyond the applicant's control [*as evidenced by, for example, medical records in the case of unexpected illness of owner or crew, receipts for repairs to the vessel, affidavits of knowledgeable witnesses to the circumstance, etc.*];
> >
> > c) that the circumstances were unavoidable, unique to the applicant (or the vessel), and unforseen and reasonably unforeseeable [*as evidenced by, for example, contemporary records of the event and affidavits explaining how the event was unique to the owner and/or the vessel*];
> >
> > d) that the applicant took reasonable steps to overcome the circumstance [*as evidenced by, for example, records of phone calls to suppliers of replacement parts, receipts from airlines, affidavits of witnesses who observed the efforts made to deploy the vessel in spite of the circumstances, etc.*]; and,
> >
> > e) that the applicant successfully deployed the vessel and made qualifying harvest(s) during the period between the onset of the circumstance(s) and June 17, 1995 [*as evidenced, in most cases, by contemporary fish tickets and/or NMFS weekly production reports*].

One problem with allowing "unavoidable circumstance" claims is one of trying to limit how many such claims are made. Because they are: (1) (by definition) unique to each applicant; (2) (in most cases) they can only be proven in an administrative hearing; and (3) resolving such claims can be both time- and cost-consuming,

there is always a desire not to include "unavoidable circumstances" claims as a way of meeting (some or all) of the qualifying requirements.

Assuming that an applicant succeeds in demonstrating that her/his fishing plan was thwarted by an "unavoidable circumstance," the problem that then arises is how much QS to issue (unlike a license program, where the issue is whether to allow the fishing to occur, a QS program requires us to determine how much fishing should be allowed to occur). This problem isn't insurmountable, but the relatively short history of the fishery and the consequent lack of data sets would militate against simply agreeing to issue a person's "average" amounts – more detailed and complex computations would be required.

Finally, a big problem with allowing "unavoidable circumstance" claims is that their impact on the ultimate licensing scheme cannot be predicted. When analysis is done of the consequences of a proposal (e.g., how many eligible applicants are there, how much QS/IFQ will be issued, etc.), it is simply not possible to guess how many individuals might qualify under an "unavoidable circumstance" provision.

NOAA General Counsel has strongly recommended that persons be allowed to apply if they can demonstrate eligibility under the terms of the Rehabilitation Act. In the LLP application instructions, NMFS provided the following guidance:

> Applicant claiming eligibility for a license under the terms of the Rehabilitation Act of 1973.
>
> Section 504 of the Rehabilitation Act of 1973 (as amended by the Rehabilitation, Comprehensive Services, and Developmental Disabilities Amendments of 1978) provides:
>
> *No otherwise qualified individual with a disability in the United States . . . shall, solely by reason of her or his disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination . . . under any program or activity conducted by any Executive Agency . . .*

To implement the Rehabilitation Act, the Department of Commerce has published regulations [at 15 CFR § 8c.30] relating to its nondiscrimination duties under the Act. Paragraph (b) of that section provides that the Department of Commerce may not:

> *(b)(1)(i) Deny a qualified individual with handicaps the opportunity to participate in or benefit from the aid, benefit or service [provided by the Department];*
>
> *(b)(1)(ii) Afford a qualified individual with handicaps an opportunity to participate in or benefit from the aid, benefit or service [provided by the Department] that is not equal to that afforded to others;*
>
> *(b)(1)(iii) Provide a qualified individual with handicaps with an aid, benefit or service that is not effective in affording equal opportunity to obtain the same result, to gain the same benefit, or to reach the same level of achievement as that provided to others; or*
>
> *(b)(1)(iv) Otherwise limit a qualified individual with handicaps in the enjoyment of any right, privilege, advantage, or opportunity enjoyed by others receiving the aid, benefit or service [provided by the Department].*

The regulations further provide:

> *(b)(6) The [Department] may not administer a licensing or certification program in a manner that subjects qualified individuals with handicaps to discrimination on the basis of handicap, nor may the agency establish requirements for the programs or activities of licensees or certified entities that subject qualified individuals with handicaps to discrimination on the basis of handicap.*

Note that these requirements prohibit discrimination against "...otherwise qualified individuals..." (emphasis supplied) Therefore, if the applicant is an individual, and was eligible, on June 17, 1995, to document a fishing vessel under Chapter 121, Title 46, U.S.C., this section may pertain. However, some link between an applicant's disability and his/her ability to deploy a vessel in the fisheries during the qualifying and endorsement periods must be shown.

Therefore, to support a claim of eligibility for a license (or an endorsement thereto) under the Rehabilitation Act, the applicant must submit evidence (in the form of statements and supporting documentation) that demonstrates that the applicant would have been eligible to receive a license (or an endorsement thereto) had it not been for the existence of a documented disability that frustrated the intent to deploy a vessel in a fishery(ies) and to develop a qualifying fishing history. One way of reading this is that it is an "unavoidable circumstance" provision, but that it applies only to otherwise qualified applicants and to personal injury or disability.

Interim Quota Share and Individual Fishing Quota

Another policy option for the Council to consider is whether to issue interim (non-transferable) QS/IFQ to an applicant during the pendency of final agency action on her/his application. According to NOAA General Counsel, issuing interim QS/IFQ is not required in this program (unlike the LLP program, for which federal licensing existed prior to the imposition of the LLP requirement, the charter fishery was not a federally-licensed activity), so whether to provide for interim QS/IFQ is entirely discretionary.

Sound arguments can be made for and against both options. Some arguments in favor of issuing interim QS/IFQ are:

- It is more fair (if, that is, the applicant eventually prevails on his/her claims). If through no fault of his/her own, an applicant's claims are not verified by RAM, why should s/he be kept on the beach while the bureaucracy grinds its wheels and reviews and rules on evidence provided?

- If the determination is an "all or nothing" decision (i.e., does the applicant get any QS/IFQ, as opposed to how much, it would seem just to allow the business to continue its operations while the administrative process grinds on.

- If adjudications (especially on appeal) are not made in a timely manner, the agency may have some legal exposure for an alleged failure of diligence in resolving the claims; this would be obviated (or, at least, palliated) if the applicant were allowed to keep his business operating in the mean time.

But there are good arguments against issuing Interim QS/IFQ, including:

- Issuing Interim QS/IFQ invites frivolous claims.
- Issuing Interim QS/IFQ invites delays by applicants and their attorneys (especially if the matter is pending before the Office of Administrative Appeals (OAA)).
- Issuing Interim QS/IFQ could discourage agreements between the parties in cases of conflicting claims (such as between vessel owners and alleged vessel lessees claiming the same landings for QS awards).
- Issuing Interim QS/IFQ could complicate and delay administrative action on more legitimate claims (because time will need to be spent on those who argue that they are entitled to fish, notwithstanding the regulations that tell them that they're not eligible).
- This is especially true if the Council decides to allow claims premised on "unavoidable circumstances" (which will, by definition, be difficult and time-consuming to resolve).
- Interim QS/IFQ is "paid for" by all the other QS/IFQ holders (because it is included in the QS Pool).

A middle ground is also possible, and is what (by policy, not by regulation) was employed in the commercial IFQ program. That is the option of including disputed QS amounts in the QS pool, but not issuing any annual IFQ unless, and until, the claimant prevails. The determination on whether to include the QS in the pool is based on a judgment by the OAA that the applicant may well prevail and that a decision is likely to be reached during the year in which the QS is included in the pool (in the commercial program, QS that was subject to an owner/lessee dispute was included, as well). If s/he does prevail, the IFQ amount is available for immediate issuance. This approach seems more fair than not issuing anything until the calendar year following a favorable decision – but it bears the risk of depressing all QS/IFQ holders' amounts premised on the mere expectancy that an applicant may prevail.

4.2.4 Issue 4 - Formula for calculating the initial distribution of QS

Option 1. 70% of 1998 and 1999 logbook average with an additional 10% added for each year of operation 1995-97 (longevity reward).

Option 2. Modified Kodiak proposal: 5-30% for A, 33% for B, 37-62% for C

Part A: each individual gets an equal percentage of the qualified pool as identified by the Council's final action.
Part B: each individual's average 98/99 logbook harvest as percentage of overall harvest is multiplied by 33% of the qualified pool.
Part C: one point for each year of participation during 1995-99.

Suboption: Base distribution for the preferred option on both total catch retained and caught and released

Once the individuals to whom the quota will be assigned are identified, then a decision must be made regarding how the quota shares will be allocated among them. Because of the problems associated with linking the various data sets together based on the owner, it is not possible to provide estimates of the amount of quota that would be allocated to each QS holder. Instead, the analysis will focus on the options in a general sense and provide examples of how QS would be distributed given hypothetical participants and catch

histories. While this will not provide the Council and members of the public the point estimates that they would prefer, it should provide a general understanding of the impacts of the options. This method also expands the range of the options that the Council may consider at the time of final action. Because the issues are discussed in a general sense, the Council may feel that they have adequate information to expand the percentage ranges considered under Options 1 and 2.

Option 1

The mechanics of Option 1 are outlined below and reproduced graphically in Figure 4.1.

1. The average of each initial issuee's 1998 and 1999 harvest in fish will be estimated according to logbook records. Of this amount, each individual will be awarded:

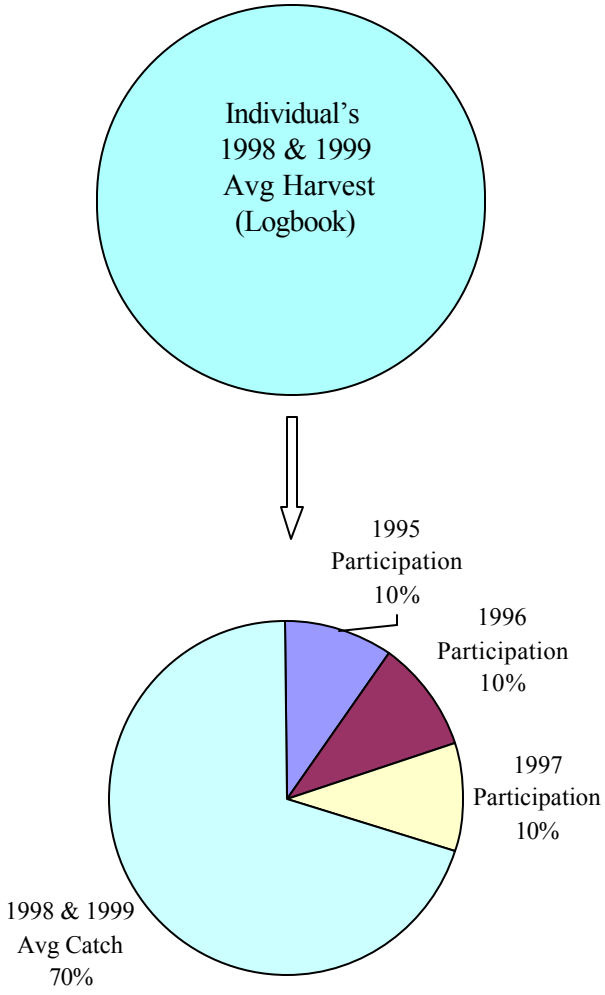
    a. 70% of his average 1998 and 1999 harvest amount.
    b. An additional 10% of the individual's 1998 and 1999 logbook average will be awarded for each year of proven participation in the fishery for 1995, 1996, and 1997.
    c. The resulting harvest award for each issue will be summed by IPHC area and each individual's harvest award will then be converted to a percentage relative to the sum of all issuees' 1998 and 1999 logbook averages.
    d. Each issuee's share will then be multiplied by the poundage associated with the Council's preferred option under Issue 1. The resulting poundage (IFQs) will then reflect the amount of allocated quota, and will be issued as pounds or converted to numbers of fish depending on the Council's preferred option under Issue 9.

Option 2

The steps for calculating the amounts under Issue 4, Option 2 (modified Kodiak proposal) are as follows:

1. For Part A, an equal share of 5% of the initial pool is awarded to each issuee (30% in the second example to demonstrate the upper bound of the specified range).
2. For Part B, the individual's 1998 and 1999 average harvest is divided by the total 1998 and 1999 average harvest to calculate each individual's relative percentage of total harvest. This percentage is then multiplied by 33% of the initial pool.
3. Part C is calculated by awarding a point a year to each individual for participation between 1995 and 1999. The ratio of each issuee's points divided by the total number of points is then multiplied by 62% of the initial pool (37% in the second example).

Figure 4.1 Example of QS distribution in Area 3A under Issue 2, Option 1.



=

individual's awarded catch, as % of sum of all issuees' 98 & 99 average

X

Pounds based on Issue 1,Options 1, 2 or 3

Comparison of Options 1 and 2

The distribution of QS under Issue 4, Options 1 and 2 may be compared using a hypothetical example. The fictitious catch histories were used to show how the proposed allocation scheme would work. The histories were selected to represent highliners and person who smaller catch histories, as persons who just entered the fishery and persons that have been in the fishery since 1995. In other words, the example attempt to shed light on how the proposed allocation formula would impact persons with various catch histories. Actual catch histories for charter operators cannot be determined from the existing data, due to problems associated with tracking person through time and across data sets. However, the Council should feel free to select any alternative they determine to be appropriate, since a person's catch history can be determined and verified through the application process. A similar process was used to show the impacts of Option 2 in Table 4.5. The example is based on 15 vessels with varying logbook catch histories and years of participation (longevity). Hypothetical catch histories range from 80-1000 fish. Several vessels are assumed to have only one year of logbook records (1998 or 1999). For simplicity, the example is shown in numbers of fish although the actual QS would be converted into pounds based on the charter sector allocations defined under Issue 1. The following scenarios are illustrated:

Scenarios:

1. Distribution: Issue 4, Option 1; Qualification: Issue 3, Option 2 (1998 or 1999 logbook records)
2. Distribution: Issue 4, Option 1; Qualification: Issue 3, Option 1 (1998 and 1999 logbook records)
3. Distribution: Issue 4, Option 1; Qualification: Issue 3, Option 5 (1998 or 1999, 4 of 5 years)
4. Distribution: Issue 4, Option 2; Qualification: Issue 3, Option 2 (1998 or 1999 logbook records)
5. Distribution: Issue 4, Option 2; Qualification: Issue 3, Option 1 (1998 and 1999 logbook records)
6. Distribution: Issue 4, Option 2; Qualification: Issue 3, Option 5 (1998 or 1999, 4 of 5 years)

Scenarios 1-3 are shown in Table 4.4 and Scenarios 4-6 (modified Kodiak proposal) are shown in Table 4.5. For scenarios 1-3, the hypothetical distribution is calculated assuming the remainder (to be explained below) is distributed among all issuees (1) proportionally, and (2) equally. For scenarios 4-6, the distribution is calculated assuming Part A = 5% (B = 33% and C = 62%) and assuming Part A = 30% (B = 33% and C = 37%). For all scenarios, the allocations (in numbers of fish) are shown based on 100% and 125% of the average harvest history. Finally, for each scenario, the ratio of the allocation to average harvest is shown for each hypothetical vessel to show how the vessel's allocation compares to its harvest. Note that while the example is based on the vessel's history, the QS would be awarded to the vessel's owner and that the charter business owner may own several vessels.

Table 4.4 shows the hypothetical distribution for Issue 4, Option 1, Scenarios 1-3. Since not all issuees receive the same longevity reward, there is a remainder that must be redistributed. For example, under Scenario 1, the awarded catch based on 70% of the average 1998/'99 logbook harvest plus the amount awarded for longevity totals 5379 fish. Compared to the average 1998/'99 logbook harvest (6450 fish), this results in a 16.6% remainder. Equally distributing this remainder tends to award more to those with relatively low logbook harvests and few years of participation but reduces the amount awarded to those with high harvests and longevity. For example, boat c5 caught 80 fish in 1999 only. When the remainder is distributed proportionally, c5's allocation is only 34 fish (assuming the sector's allocation is 100% of the average harvest). When the remainder is distributed equally, however, c5's allocation is 99 fish, which is about 24% above its actual 1999 harvest. On the other hand, boat a1 caught 1000 fish in 1998 and 800 fish in 1999. When the remainder is distributed proportionally, a1's allocation is 1079 fish (when the sector's allocation is 100% of the average harvest) and when it is distributed equally, a1's allocation is 971 fish or about 8% above its average 1998/'99 harvest. If the sector's allocation is based on 125% of the average harvest, each vessel's allocation in fish (or pounds) is increased by 25% even though each vessel's allocation on a percentage basis remains the

same. Thus, for example, if the remainder is distributed equally, boat c5 would be allocated 124 fish if the sector's allocation is 125% of the average harvest.

Scenarios 2 and 3 illustrate how the distribution is impacted by the qualification criteria under Issue 3, Options 1 and 5, respectively. Under Issue 3, Option 1, an initial issuee must have both 1998 and 1999 logbook records. Thus, boats a5, b5 and c5 receive no QS in the initial allocation. Their harvest history is effectively redistributed among the qualifying issuees. In addition, the magnitude of the remainder is smaller (15% under Scenario 2 versus 16.6% under Scenario 1). As a result, each vessel's hypothetical allocation is larger under Scenario 2. For example, boat a1's allocation is 1088 fish (when the sector's allocation is 100% of the average harvest) under Scenario 2 versus 971 fish under Scenario 1. Under Scenario 3, even fewer vessels qualify since only those that participated 4 of 5 years participate. Thus, the harvest histories for vessels that do not qualify are distributed to those that do. Furthermore, the magnitude of the remainder is reduced further (to 5%) since most of the issuee's that qualify meet the full longevity requirement (participation in 1995, '96 and '97). Now, all hypothetical issuees receive allocations that are a factor of 2-3 times their average harvest levels. For example, vessel a1 would receive an allocation of 2069 fish or 2.3 times its average harvest of 900 fish (assuming the remainder is equally distributed).

Table 4.5 shows the hypothetical distributions for Issue 4, Option 2 (modified Kodiak proposal), Scenarios 4-6. For these scenarios, a range of 5-30% of the allocation is distributed equally among all issuees (Part A) and 33% of the allocation is based on the average logbook harvest (Part B). An additional amount is awarded based on longevity whereby each vessel receives a point for each year of participation for years 1995-'99; a vessel's fraction of the total points is then multiplied by a percentage ranging from 37-62% (Part C). The modified Kodiak distribution method greatly increases the allocation to vessels with low logbook histories. For example, under Scenario 4, vessels c1-c5 (with low logbook histories) receive allocations that are 2-7 times their average logbook harvests while vessels a1-a5 (with high logbook histories) receive allocations that are 0.3-1.1 times their logbook histories. When the portion that is equally distributed (Part A) is 30%, vessels with both low logbook harvests and few years of participation receive higher multiples of their harvest history. For example, vessel c5 would be allocated 195 fish if Part A is 30% but only 124 fish if Part A is 5% (versus its 1999 harvest of 80 fish).

Scenarios 5 and 6 illustrate how the distribution under the modified Kodiak proposal is impacted when fewer vessels qualify to participate in the initial allocation. Under Scenario 5, participants must have both 1998 and 1999 logbook records. Under Scenario 6, participants must have 1998 or 1999 logbook records and must have participated 4 of 5 years. For both scenarios, the harvest histories for vessels that fail to qualify are effectively redistributed to those that do qualify. The fewer the number of participants, the larger the amount that is equally distributed. As a result, the allocations tend to be more tightly clustered around the mean. This is seen clearly for Scenario 6. Under Scenario 6, only vessels with 4 of 5 years of participation qualify as initial issuees. The resulting percentage allocations range from 11% to 23% for the qualifying issuees. The harvest histories of the qualifying vessels, however, range from 3.1% to 31.3%. By contrast, under Scenario 3 whereby the distribution is calculated using 70% of the logbook harvest, the allocations range from 3% to 33% and are more reflective of the vessels' historical market share.

Based on these hypothetical examples, several general observations may be made as follows:

- Under Option 1, the distribution is more heavily dependent on an issuee's logbook history than under Option 2 (the modified Kodiak proposal. As a result, under Option 1, the distribution is also more reflective of the issuee's historical harvest percentage.
- Under Option 1, the magnitude of the remainder is larger when fewer issuee's meet the longevity requirement. Equally distributing the remainder (versus distributing the remainder

proportionally) reduces the allocation to those with high logbook harvests and increases the allocation to those with low logbook harvests..

< The distribution under Option 2 (the modified Kodiak proposal) is more closely clustered around the mean, compared to the distribution under Option 1. There is less variation in the individual allocations because the combination of longevity (Part C) and the amount that is equally distributed (Part A) play a more substantial role.

The percentage allocations for the six Scenarios are summarized in Table 4.6. Again, under Option 1, equally distributing the remainder tends to lower the allocation for those with high logbook harvests but raises the allocation for those with low logbook harvests. This effect is much more pronounced under Option 2 (the modified Kodiak proposal) since much less emphasis is placed on the issuee's logbook harvest. The differences between Option 1 and 2 are relatively modest, however, for issuee's that have logbook harvests in the middle of the range (e.g., vessels b1-b5 in this hypothetical example).

Table 4.4 Example of QS allocation among hypothetical issuees for Issue 4, Option 1 (See endnotes for description of Table headings)

Scenario 1: Issue 3, Option 2					Issue 4, Option 1					Proportional					Equal				
				Share						Alloc.	100%		125%		Alloc.	100%		125%	
Boat	1998	1999	Avg	%	x 70%	95	96	97	Sum	%	Fish	Ratio	Fish	Ratio	%	Fish	Ratio	Fish	Ratio
a1	1000	800	900	14.0	630	90	90	90	900	16.7	1079	1.2	1349	1.5	15.1	971	1.1	1214	1.3
a2	1000	800	900	14.0	630		90	90	810	15.1	971	1.1	1214	1.3	13.7	881	1.0	1102	1.2
a3	1000	800	900	14.0	630			90	720	13.4	863	1.0	1079	1.2	12.3	791	0.9	989	1.1
a4	1000	800	900	14.0	630				630	11.7	755	0.8	944	1.0	10.9	701	0.8	877	1.0
a5	0	800	400	6.2	280				280	5.2	336	0.4	420	0.5	5.4	351	0.4	439	0.5
b1	500	400	450	7.0	315	45	45	45	450	8.4	540	1.2	674	1.5	8.1	521	1.2	652	1.4
b2	500	400	450	7.0	315		45	45	405	7.5	486	1.1	607	1.3	7.4	476	1.1	596	1.3
b3	500	400	450	7.0	315			45	360	6.7	432	1.0	540	1.2	6.7	431	1.0	539	1.2
b4	500	400	450	7.0	315				315	5.9	378	0.8	472	1.0	6.0	386	0.9	483	1.1
b5	500	0	250	3.9	175				175	3.3	210	0.8	262	1.0	3.8	246	1.0	308	1.2
c1	100	80	90	1.4	63	9	9	9	90	1.7	108	1.2	135	1.5	2.5	161	1.8	202	2.2
c2	100	80	90	1.4	63		9	9	81	1.5	97	1.1	121	1.3	2.4	152	1.7	191	2.1
c3	100	80	90	1.4	63			9	72	1.3	86	1.0	108	1.2	2.2	143	1.6	179	2.0
c4	100	80	90	1.4	63				63	1.2	76	0.8	94	1.0	2.1	134	1.5	168	1.9
c5	0	80	40	0.6	28				28	0.5	34	0.4	42	0.5	1.5	99	1.2	124	1.6
	6900	6000	6450						5379	100	6450		8063		100	6450		8063	
					Remainder =				16.6%										

Scenario 2: Issue 3, Option 1					Issue 4, Option 1					Proportional					Equal				
				Share						Alloc.	100%		125%		Alloc.	100%		125%	
Boat	1998	1999	Avg	%	x 70%	95	96	97	Sum	%	Fish	Ratio	Fish	Ratio	%	Fish	Ratio	Fish	Ratio
a1	1000	800	900	15.6	630	90	90	90	900	18.4	1186	1.3	1482	1.6	16.9	1088	1.2	1361	1.5
a2	1000	800	900	15.6	630		90	90	810	16.5	1067	1.2	1334	1.5	15.3	988	1.1	1235	1.4
a3	1000	800	900	15.6	630			90	720	14.7	949	1.1	1186	1.3	13.8	887	1.0	1109	1.2
a4	1000	800	900	15.6	630				630	12.9	830	0.9	1037	1.2	12.2	786	0.9	983	1.1
a5	0	800																	
b1	500	400	450	7.8	315	45	45	45	450	9.2	593	1.3	741	1.6	9.1	585	1.3	731	1.6
b2	500	400	450	7.8	315		45	45	405	8.3	534	1.2	667	1.5	8.3	534	1.2	668	1.5
b3	500	400	450	7.8	315			45	360	7.4	474	1.1	593	1.3	7.5	484	1.1	605	1.3
b4	500	400	450	7.8	315				315	6.4	415	0.9	519	1.2	6.7	433	1.0	542	1.2
b5	500	0																	
c1	100	80	90	1.6	63	9	9	9	90	1.8	119	1.3	148	1.6	2.8	181	2.0	227	2.5
c2	100	80	90	1.6	63		9	9	81	1.7	107	1.2	133	1.5	2.7	171	1.9	214	2.4
c3	100	80	90	1.6	63			9	72	1.5	95	1.1	119	1.3	2.5	161	1.8	202	2.2
c4	100	80	90	1.6	63				63	1.3	83	0.9	104	1.2	2.3	151	1.7	189	2.1
c5	0	80																	
	6900	6000	5760	100					4896	100	6450		8063		100	6450		8063	
					Remainder =				15.0%										

Table 4.4 (continued)

Scenario 3: Issue 3, Option 5					Issue 4, Option 1					Proportional					Equal				
				Share						Alloc.	100%		125%		Alloc.	100%		125%	
Boat	1998	1999	Avg	%	x 70%	95	96	97	Sum	%	Fish	Ratio	Fish	Ratio	%	Fish	Ratio	Fish	Ratio
a1	1000	800	900	31.3	630	90	90	90	900	32.9	2122	2.4	2652	2.9	32.1	2069	2.3	2587	2.9
a2	1000	800	900	31.3	630		90	90	810	29.6	1910	2.1	2387	2.7	29.0	1868	2.1	2335	2.6
a3	1000	800																	
a4	1000	800																	
a5	0	800																	
b1	500	400	450	15.6	315	45	45	45	450	16.4	1061	2.4	1326	2.9	16.5	1062	2.4	1327	2.9
b2	500	400	450	15.6	315		45	45	405	14.8	955	2.1	1193	2.7	14.9	961	2.1	1201	2.7
b3	500	400																	
b4	500	400																	
b5	500	0																	
c1	100	80	90	3.1	63	9	9	9	90	3.3	212	2.4	265	2.9	4.0	255	2.8	319	3.5
c2	100	80	90	3.1	63		9	9	81	3.0	191	2.1	239	2.7	3.6	235	2.6	294	3.3
c3	100	80																	
c4	100	80																	
c5	0	80																	
	6900	6000	2880	100					2736	100	6450		8063		100	6450		8063	
					Remainder =				5.0%										

Notes:
Scenario 1: assumes qualification (Issue 3) is based on Option 2, requiring 1998 or 1999 logbook records; the distribution of QS (Issue 4) is based on Option 1 (70% based on logbook, up to 30% based on longevity).

Scenario 2: assumes qualification (Issue 3) is based on Option 1, requiring 1998 and 1999 logbook records; the distribution of QS (Issue 4) is based on Option 1 (70% based on logbook, up to 30% based on longevity).

Scenario 3: assumes qualification (Issue 3) is based on Option 5, requiring 1998 or 1999 logbook records and 4 of 5 years of participation during 1995-'99; distribution is based on Option 1 (70% based on logbook, up to 30% based on longevity).

Allocations are calculated assuming remainder is proportionally or equally distributed. Ratios are calculated based on each vessel's allocation (in number of fish) relative to its average harvest; for vessel's with only one year of logbook data, the ratio is based on the harvest for that year (instead of the two-year average).

Table 4.5 Example of QS distribution under Option 2 (the modified Kodiak proposal) - (See endnotes for description of Table headings)

Scenario 4: Issue 3, Option 2					Scenario: Issue 4, Option 2							Part A = 5%, C = 62%					Part A = 30%, C = 37%				
				Share							fraction of	Alloc.	100%		125%		Alloc.	100%		125%	
Boat	1998	1999	Avg	%	x 33%	95	95	97	98	99	points	%	Fish	Ratio	Fish	Ratio	%	Fish	Ratio	Fish	Ratio
a1	1000	800	900	14.0	4.6	1	1	1	1	1	0.11	11.8	763	0.8	954	1.1	10.7	691	0.8	864	1.0
a2	1000	800	900	14.0	4.6		1	1	1	1	0.09	10.4	674	0.7	842	0.9	9.9	638	0.7	798	0.9
a3	1000	800	900	14.0	4.6			1	1	1	0.07	9.1	585	0.7	731	0.8	9.1	585	0.7	731	0.8
a4	1000	800	900	14.0	4.6				1	1	0.04	7.7	496	0.6	620	0.7	8.2	532	0.6	665	0.7
a5	0	800	400	6.2	2.0					1	0.02	3.8	242	0.3	303	0.4	4.9	314	0.4	393	0.5
b1	500	400	450	7.0	2.3	1	1	1	1	1	0.11	9.5	614	1.4	768	1.7	8.4	543	1.2	678	1.5
b2	500	400	450	7.0	2.3		1	1	1	1	0.09	8.1	525	1.2	657	1.5	7.6	490	1.1	612	1.4
b3	500	400	450	7.0	2.3			1	1	1	0.07	6.8	437	1.0	546	1.2	6.8	437	1.0	546	1.2
b4	500	400	450	7.0	2.3				1	1	0.04	5.4	348	0.8	435	1.0	5.9	384	0.9	479	1.1
b5	500	0	250	3.9	1.3				1		0.02	3.0	193	0.4	241	0.5	4.1	265	0.5	331	0.7
c1	100	80	90	1.4	0.5	1	1	1	1	1	0.11	7.7	496	5.5	619	6.9	6.6	424	4.7	530	5.9
c2	100	80	90	1.4	0.5		1	1	1	1	0.09	6.3	407	4.5	508	5.6	5.7	371	4.1	464	5.2
c3	100	80	90	1.4	0.5			1	1	1	0.07	4.9	318	3.5	397	4.4	4.9	318	3.5	397	4.4
c4	100	80	90	1.4	0.5				1	1	0.04	3.5	229	2.5	286	3.2	4.1	265	2.9	331	3.7
c5	0	80	40	0.6	0.2					1	0.02	1.9	124	1.5	154	1.9	3.0	195	2.4	244	3.1
	6900	6000	6450	100	33						1.00	100	6450		8063		100	6450		8063	

Scenario 5: Issue 3, Option 1					Scenario: Issue 4, Option 2							Part A = 5%, C = 62%					Part A = 30%, C = 37%				
				Share							fraction of	Alloc.	100%		125%		Alloc.	100%		125%	
Boat	1998	1999	Avg	%	x 33%	95	95	97	98	99	points	%	Fish	Ratio	Fish	Ratio	%	Fish	Ratio	Fish	Ratio
a1	1000	800	900	15.6	5.2	1	1	1	1	1	0.12	13.0	836	0.9	1044	1.2	12.1	778	0.9	972	1.1
a2	1000	800	900	15.6	5.2		1	1	1	1	0.10	11.5	740	0.8	925	1.0	11.2	721	0.8	901	1.0
a3	1000	800	900	15.6	5.2			1	1	1	0.07	10.0	645	0.7	806	0.9	10.3	664	0.7	830	0.9
a4	1000	800	900	15.6	5.2				1	1	0.05	8.5	550	0.6	687	0.8	9.4	607	0.7	759	0.8
a5	0	800		0.0	0.0																
b1	500	400	450	7.8	2.6	1	1	1	1	1	0.12	10.4	669	1.5	837	1.9	9.5	612	1.4	765	1.7
b2	500	400	450	7.8	2.6		1	1	1	1	0.10	8.9	574	1.3	718	1.6	8.6	555	1.2	694	1.5
b3	500	400	450	7.8	2.6			1	1	1	0.07	7.4	479	1.1	599	1.3	7.7	498	1.1	623	1.4
b4	500	400	450	7.8	2.6				1	1	0.05	5.9	384	0.9	479	1.1	6.8	441	1.0	551	1.2
b5	500	0		0.0	0.0																
c1	100	80	90	1.6	0.5	1	1	1	1	1	0.12	8.3	536	6.0	670	7.4	7.4	479	5.3	598	6.6
c2	100	80	90	1.6	0.5		1	1	1	1	0.10	6.8	441	4.9	551	6.1	6.5	422	4.7	527	5.9
c3	100	80	90	1.6	0.5			1	1	1	0.07	5.4	346	3.8	432	4.8	5.7	365	4.1	456	5.1
c4	100	80	90	1.6	0.5				1	1	0.05	3.9	251	2.8	313	3.5	4.8	308	3.4	385	4.3
c5	0	80		0.0	0.0																
	6900	6000	5760	100	33						1.00	100	6450		8063		100	6450		8063	

Table 4.5 (continued)

Scenario 6: Issue 3, Option 5					Scenario: Issue 4, Option 2							Part A = 5%, C = 62%					Part A = 30%, C = 37%				
				Share							fraction of	Alloc.	100%		125%		Alloc.	100%		125%	
Boat	1998	1999	Avg	%	x 33%	95	95	97	98	99	points	%	Fish	Ratio	Fish	Ratio	%	Fish	Ratio	Fish	Ratio
a1	1000	800	900	31.3	10.3	1	1	1	1	1	0.19	22.6	1459	1.6	1824	2.0	22.2	1430	1.6	1787	2.0
a2	1000	800	900	31.3	10.3		1	1	1	1	0.15	20.3	1311	1.5	1639	1.8	20.8	1341	1.5	1677	1.9
a3	1000	800																			
a4	1000	800																			
a5	0	800																			
b1	500	400	450	15.6	5.2	1	1	1	1	1	0.19	17.5	1127	2.5	1409	3.1	17.0	1097	2.4	1371	3.0
b2	500	400	450	15.6	5.2		1	1	1	1	0.15	15.2	979	2.2	1223	2.7	15.6	1009	2.2	1261	2.8
b3	500	400																			
b4	500	400																			
b5	500	0																			
c1	100	80	90	3.1	1.0	1	1	1	1	1	0.19	13.3	861	9.6	1076	12.0	12.9	831	9.2	1039	11.5
c2	100	80	90	3.1	1.0		1	1	1	1	0.15	11.0	713	7.9	891	9.9	11.5	743	8.3	928	10.3
c3	100	80																			
c4	100	80																			
c5	0	80																			
	6900	6000	2880	100	33						1.00	100	6450		8063		100	6450		8063	

Notes:

Scenario 4: assumes qualification (Issue 3) is based on Option 2, requiring 1998 or 1999 logbook records; the distribution (Issue 4) is based on Option 2, the modified Kodiak proposal (Part A = 5% and 30%).

Scenario 5: assumes qualification (Issue 3) is based on Option 1, requiring 1998 and 1999 logbook records; the distribution (Issue 4) is based on Option 2, the modified Kodiak proposal (Part A = 5% and 30%)..

Scenario 6: assumes qualification (Issue 3) is based on Option 5, requiring 1998 or 1999 logbook records and 4 of 5 years of participation; the distribution is based on the modified Kodiak proposal (Part A = 5% and 30%).

The ratio is based on each vessel's hypothetical allocation relative to its average harvest; for vessel's with only one year of harvest, the ratio is calculated relative to that year's harvest.

Table 4.6 Comparison of QS Distribution for Options 1 and 2 for Hypothetical Example (see endnotes)

					Distribution Based on Option 1						Distribution Based on Option 2 (modified Kodiak)					
					Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5		Scenario 6	
				Share	Proport.	Equal	Proport.	Equal	Proport.	Equal	A = 5%	A = 30%	A = 5%	A = 30%	A = 5%	A = 30%
Boat	1998	1999	Avg	%	%	%	%	%	%	%	%	%	%	%	%	%
a1	1000	800	900	14.0	16.7	15.1	18.4	16.9	32.9	32.1	11.8	10.7	13.0	12.1	22.6	22.2
a2	1000	800	900	14.0	15.1	13.7	16.5	15.3	29.6	29.0	10.4	9.9	11.5	11.2	20.3	20.8
a3	1000	800	900	14.0	13.4	12.3	14.7	13.8			9.1	9.1	10.0	10.3		
a4	1000	800	900	14.0	11.7	10.9	12.9	12.2			7.7	8.2	8.5	9.4		
a5	0	800	400	6.2	5.2	5.4					3.8	4.9				
b1	500	400	450	7.0	8.4	8.1	9.2	9.1	16.4	16.5	9.5	8.4	10.4	9.5	17.5	17.0
b2	500	400	450	7.0	7.5	7.4	8.3	8.3	14.8	14.9	8.1	7.6	8.9	8.6	15.2	15.6
b3	500	400	450	7.0	6.7	6.7	7.4	7.5			6.8	6.8	7.4	7.7		
b4	500	400	450	7.0	5.9	6.0	6.4	6.7			5.4	5.9	5.9	6.8		
b5	500	0	250	3.9	3.3	3.8					3.0	4.1				
c1	100	80	90	1.4	1.7	2.5	1.8	2.8	3.3	4.0	7.7	6.6	8.3	7.4	13.3	12.9
c2	100	80	90	1.4	1.5	2.4	1.7	2.7	3.0	3.6	6.3	5.7	6.8	6.5	11.0	11.5
c3	100	80	90	1.4	1.3	2.2	1.5	2.5			4.9	4.9	5.4	5.7		
c4	100	80	90	1.4	1.2	2.1	1.3	2.3			3.5	4.1	3.9	4.8		
c5	0	80	40	0.6	0.5	1.5					1.9	3.0				
	6900	6000	6450	100	100	100	100	100	100	100	100	100	100	100	100	100

Notes:

Scenario 1: Qualification - Issue 3, Option 2 (1998 or 1999 logbook records)
Scenario 2: Qualification - Issue 3, Option 1 (1998 and 1999 logbook records)
Scenario 3: Qualification - Issue 3, Option 5 (1998 or 1999 logbook records, 4 of 5 years 1995-'99)
Scenario 4: Qualification - Issue 3, Option 2 (1998 or 1999 logbook records)
Scenario 5: Qualification - Issue 3, Option 1 (1998 and 1999 logbook records)
Scenario 6: Qualification - Issue 3, Option 5 (1998 or 1999 logbook records, 4 of 5 years 1995-'99)

Longevity: vessels numbered 1, 2, 3, 4 and 5 have longevities of 5, 4, 3, 2 and 1, respectively.

Allocation based on total catch of halibut (kept & released) This suboption was included in the analysis before the allocation between the commercial and charter sectors had been narrowed to the current list in Issue 1. It is likely that charter operators proposed this option as a means of altering the overall allocation between the sectors. Since the overall allocation to the charter fleet will not be impacted by this option, given the current list of alternatives, there may be less interest in this suboption as it will only distribute the overall charter allocation within the charter sector.

The suboption would base the 1998 and 1999 logbook average catches on the number of fish caught and released in addition to those retained. The main options are based only on the halibut that were retained. Under Option 1, the suboption will impact the 70% of the quota allocated based on catch history reported in logbooks, which also inflates their allocation if they are issued an additional 10% of their base allocation for each year of participation 1995-97. This suboption only affects Part B of Option 2, which assigns 33% of the available quota based on the individuals relative catch history reported in logbooks. In each case, crediting individuals for fish that were caught and released disadvantages charter operators who released relatively fewer fish to those that released more halibut.

There are several reasons why charter operators may have released halibut. Some charter operators may have encouraged clients to release large females in an effort to reduce the impact of charter fishing on the brood stock. This is a laudable goal; however, it has little effect on the broodstock. However, the person that returned a small halibut to the sea in the hopes of catching a larger one later would be given the same catch history credit as the person in the previous example. This does not seem equitable, but given the data available there is no way to distinguish between the two practices. It also seems reasonable, to include a provision that no charter operator could be credited with more catch history on a trip than the legal bag limit. If a charter operator took out six paying clients in a day that means that the maximum number of fish they could receive catch history credit for is 12. If that day the charter operator's clients caught 18 fish, kept 9, and returned 9 to the sea, they would be given catch history credit for 12 fish when determining quota shares.

To provide the reader a general understanding of how including released halibut might impact the quota distribution within the charter sector, logbook data for 1999 were selected where six or fewer rods were fished for bottomfish and the number of halibut caught was greater than 12. Over 8,000 records met this criteria. Eleven records indicated that over 100 halibut were released on a trip. A total of 1,400 logbook entries (trips) indicated that the total number of halibut caught exceeded the retention limit by at least 20 halibut. Crediting individuals with large numbers of released fish would disadvantage operators with catch histories that were close to the legal retention limit. In some cases, the same vessels consistently reported large numbers of released fish. These operators would receive large QS allocations based on released halibut, which may unfairly inflate their allocation

It should also be noted that catch and release fishing will not count against the QS holder's quota balance, prompting the question of whether or not it is appropriate to use caught and released fish as the basis for calculating an individual's initial allocation.

4.2.5 Issue 5 - Transferability of QS (permanent) and IFQs (on annual basis [leasing])

This section of the analysis is taken from the paper developed by Drs. James E. Wilen and Gardner M. Brown. Their text has been inserted verbatim, with only slight changes in the format of their document before the text was included in this section.

Individual quota systems of one form or another have been implemented in over 60 different fisheries worldwide according to a recent inventory (OECD, 1997). Each program has been responsive to different

concerns expressed by stakeholders during design phases and, as a result, there are many different "experiments" to examine. Many programs have transfer and/or cap policies in some form or another. It is probably not an exaggeration to say that most of these restrictions on trades in quotas or leases have been implemented in response to fears that an unrestricted program will change the status quo too dramatically or too rapidly. These fears are understandable in light of the very different incentives generated by quota systems compared with regulated open access. At the same time, simple economic theory can tell us something about the likely directions of change under various restrictions, so that policies need not be designed as if we are in the dark.

This report discusses some of the implications of various transfer and cap policies that might be implemented in the Alaskan charter halibut sector. Our focus is on the broad implications of general classes of policies, particularly the transfer and cap policies under consideration by the Council. The options under consideration by the North Pacific Council are numerous, and the lists have been suggested and modified by various members of both the charter and commercial halibut industries in numerous meetings. Most options embody existing experience with the commercial program and informed speculation about possible impacts of a charter sector program. While the specific transfer and cap options under consideration by the Council are numerous, within each issue grouping, the options are essentially variations on a theme. For example, the transfer policies possible include options ranging from complete prohibition of transfers, to complete freedom to transfer at will, with options in between involving partial restrictions. Rather than examine each specific option in repetitive detail, we discuss the major economic efficiency issues and probable distributional impacts to the various stakeholders of the class of options, inclusively. For example, we discuss the benefits and costs of freely transferable of quota within the charter sector, and contrast the impacts with complete prohibition of transfers. Variants of these polar cases obviously have impacts that fall within the extremes.

The bulk of our discussion is focused on the primary and secondary stakeholders associated with the commercial and charter halibut industry. The important primary stakeholder groups are those associated with the "first round" or "direct" effects of policy. These include the charter operators who would be granted quota, charter anglers who would be guided by quota holders, commercial harvesters of halibut, and consumers of commercial halibut. We would expect that the economic efficiency impacts on the charter operators and commercial halibut harvesters would be reflected in producer surplus or profit changes. These, in turn, would be associated with changes in inputs used, products and services sold, and changes in the efficiency with which the halibut resource is used by the charter sector. Efficiency impacts on the consumers in the system (charter anglers and commercial halibut consumers) would be reflected in changes in market prices and quantities sold in each sector, which in turn would have some impacts on consumer surplus. Important secondary stakeholders who might be impacted by "second round" or "indirect" effects of a quota program include unguided anglers, custom processors and other businesses linked to recreational fishing, and commercial processors and other businesses linked to commercial fishing. These groups would be likely to experience second round or indirect effects associated with policy changes, measurable in producer surplus and profit changes to businesses, and possibly consumer surplus changes experienced by unguided anglers. In terms of numbers of stakeholders, the largest group likely to be impacted by quota programs are recreational anglers who use charter services[3]. Sports fishing is a significant contributor to the State's economy and both resident and non-residents are served by the existing sports charter industry. To put the scale of sports fishing in perspective, recent Alaska Department of Fish and Game (ADF&G) data suggest that nearly a half million sports anglers fished in Alaska in 1997, divided almost equally between resident and

[3] The proposed charter IFQ program is somewhat unique among quota programs since quota would be allocated to charter vessels owners rather than the individuals who are actually licensed to harvest the fish (the anglers). In virtually all other programs, individuals who engage in the harvesting are granted the quota. See also Section 4.4 for discussion regarding granting of quota shares to the charter operators versus the anglers.

non-resident anglers[4]. Seventy percent of Alaskan households have at least one sport angler. Between 1993 and 1997, the number of resident angler licenses reported by the ADF&G has remained constant while the number of non-resident angling permits increased about 25%. Most of the sports fishing activity occurs in Southcentral Alaska, concentrated around the Kenai peninsula, Homer, and Seward, followed by the Juneau and Prince of Wales Island areas in Southeast Alaska. Sportsfishing generates substantial values to anglers who experience enjoyment from the activity in excess of what they actually pay in expenditures to have the experience. Studies conducted in Alaska by the Institute for Social and Economic Research (ISER) suggest that sportsfishing generated a total 1993 economic value to Alaska of about $700 million dollars, divided roughly between consumer surplus (25%), trip-related direct expenditures (25%), and indirect and other expenditures for sports fishing (50%).

While salmon is the most popular fish targeted in Alaska by both resident and non-resident sports anglers, halibut is also important. ISER studies show that 25% of visiting sports angler trips targeted halibut in 1993. We can determine the approximate scale of the sports charter industry targeting halibut by working backward from halibut removal data. Recent data show removals by the charter industry in Area 2C of close to 1 M lb, and over 3 M lb landed by the charter industry in Area 3A[5]. Assuming roughly one landed fish per trip and 20 lb per fish, these number suggest a total number of angler day trips of about 200,000 annually. First round fishing related expenditures by these anglers average about $100 per day for residents and $150 per day for non-residents. If a reasonable estimate of consumer surplus is roughly $100 per day for both types of anglers, the net economic value of halibut charter sports fishing is $20,000,000 per year. In addition, direct fishing-related expenditures of close to $25,000,000 are incurred annually, with an additional amount of second round indirect expenditures flowing into local economies. These numbers are illustrative rather than exact, but they are reasonable gauges of the scale of importance of the industry.

4.2.5.1 Option 1: Two types of Charter Quota Share
- < Leasable
- < Non-leasable

  Suboption: Define leasing as the use of QS/IFQ on vessels on which the owner of the QS/IFQ has less than 20-75% ownership

What are the implications of restrictions on quota holders' abilities to lease or otherwise contract out their share holdings on a short-term basis? In this discussion of Option 1, we will presume that the question is whether leasing among charter quota holders **within** the charter sector should be allowed (and discuss leasing **between** charter and commercial sectors below)[6]. The most restrictive version of the non-leasing policy would be one in which only QS owners would be allowed to use their quota to land charter-caught halibut. This would be implemented and enforced by requiring that the quota owner be aboard and present to sign

[4] These data and the other overview statistics are from Haley, S. et.al. (1999).

[5] Data on total removals from Addendum to the GHL Analysis, pg. 13. Data on average landings per trip and size from Lee et. al. (2000).

[6] Since this section was prepared by the authors, Wilen and Brown, the Council clarified at the February 2001 meeting that the intent of Option 1 is to create two types of quota shares, leasable and non-leasable. This is being considered mainly to accommodate lodge owners that typically hire skippers to charter clients on vessels the lodge may own or lease. While a charter business owner that hires a skipper would not be required to lease its QS to the skipper (since the skipper is an employee of the business), granting non-leasable shares to lodge owners may discourage excess accumulation of shares by lodge owners. For example, if lodge owners were only eligible to receive non-leasable shares, they would be discouraged from accumulating more shares than they need and leasing the excess to other charter operators.

landings tickets for any halibut landed against quota. The less extreme no-leasing suboption would allow existing QS owners to lease quota to designated hired skippers, mirroring the provisions in place between 1995 and 1998 in the commercial halibut fishery (and since eliminated). This would allow, for example, charter companies that owned several vessels to operate them and land quota by transferring landings ticket signatory authority to employees. Lastly, a policy that allowed unrestricted leasing would grant quota owners the right to transfer, on a yearly basis, all or part of their quota to other eligible charter vessel operators, without limitations such as requiring the owner to be on board to land against quota shares. This policy is not under consideration at present; instead the Council is considering either prohibiting leasing or allowing leasing arrangements by quota owners who used hired skippers in the past. Regardless of which of these is adopted, it will be possible for quota owners to engage in de facto leasing, by allowing others to utilize the IFQs associated with quota shares, but only if the actual owner is aboard. This allows some limited short term transfers of rights, but at a high cost, and hence these arrangements are not quite the same as unrestricted leasing. In the sections that follow, we discuss the broad advantages of relatively unencumbered leasing and contrast these with the costs as envisioned by managers and industry.

A. Gains from Mutual Trade

Some insight into the advantages of allowing unrestricted leasing/renting can be gained by asking the same question about other productive assets such as land. For example, what are the advantages to allowing the owner of a piece of farmland to freely rent it or sharecrop it to willing tenants? Are there any good reasons to inhibit the free operation of this or other kinds of rental or lease markets? Most economists would argue that the very fact that landlords and tenants do enter into voluntary arrangements including sharecropping, renting and leasing is prima facie evidence that both parties gain from the institutional option. Restricting voluntary market arrangements would involve foregoing these real private values, and the issue is whether there are externalities or income distribution consequences that are significant enough to prohibit mutually beneficial exchange.

To the person owning the land who chooses to rent it out, being able to rent presumably generates a higher short-term return than own-production might[7]. Similarly, the person renting the land must find it advantageous compared with alternatives that include borrowing to purchase land. These circumstances of potential mutual gain can occur in many settings because productive assets are not necessarily distributed to individuals who can make the best productive use of them at each point in time. Since a lease is simply a legal instrument that allows transfer of use rights over the short term, leasing allows a temporary reallocation of the use rights of productive assets from those who place relatively lower values on the rights to those that place relatively more value on them. These differences in relative values often reflect real differences in the ability to generate profits from rights. In addition, they sometimes simply reflect differences in the strength of individual preferences for the lifestyle and other non-pecuniary benefits associated with direct use of the asset.

B. Transition Flexibility Benefits

Over the long run, when an owner-user cannot produce returns comparable to alternative owners, there are incentives to permanently transfer the asset to more productive users. For various reasons, however, permanent purchases and sales of productive assets like land take place sluggishly, particularly in comparison with financial assets such as equities and bonds. During the transitional period before which permanent transfers are completed, the ability to transfer use rights temporarily generates flexibility and allows assets to be distributed to highest and best uses before actual ownership is transferred. Under these circumstances,

[7] We use "return" in a broad sense here, in that it may include both financial return and personal satisfaction (or dissatisfaction) associated with use of the asset.

prohibiting rental, lease, and share arrangements would freeze the use of asset, tying use strictly to ownership, and reducing private and social returns from the asset. In extreme cases (e.g. a disabled or infirm owner), disallowing temporary transfers of use rights might involve loss of all of the productive values of the asset for a period.

C. Permanent Production Flexibility Benefits

Aside from these gains that emerge by temporarily reallocating productive assets to best uses during transition to permanent reallocation, there are other gains generated by lease markets that operate continuously among permanent owners. For example, even land owners who are full-time bona fide farmers intending to farm over the long haul may have need, on a temporary basis, to utilize more land or to release use of temporarily excessive land. Illness, or injury, or temporary and unusual demands on time may give rise to a circumstance in which a farmer would benefit by temporarily renting or sharecropping some of his land. Similarly, other farmers may have need for temporary additions to their own holding, opening up the possibility of mutually beneficial leasing or rental or sharecropping arrangements. The point is that the vagaries of personal and productive circumstances give rise, even when land is permanently allocated reasonably efficiently, to situations in which temporary transfer of rights of use will increase the overall benefits produced by resources. In these circumstances, economists would argue that allowing short-term transfers creates efficiency gains that are tangible and real benefits to society.

D. Charter Fleet Transition Benefits

The relevance of these general points to the halibut charter case should be clear. It is likely that any quota scheme adopted in the Alaskan sports charter industry will disperse ownership of initial quota holdings over a broader group than necessary for optimal configuration of the industry. This is an inevitable outcome of a cutoff qualification date that has allowed (even encouraged) late entry and speculation in charter fishing in order to accumulate catch records. While some grantees of quota will hold more than they want to hold in the long run, it is likely that most will hold less than might be feasible for viable business operations in the long run. It is likely that many grantees of initial quota allocations will not have real interests in long-term participation in the industry per se. Prohibiting the flexibility allowed by leasing under these circumstances would thus freeze an initial quota distribution pattern that is far from the configuration that will maximize benefits to individuals, the industry, the State of Alaska, or the nation over the long run.

Over the long run, an initial allocation pattern that is inefficient cannot be sustained and some consolidation and reconfiguration into economically viable units will inevitably occur. To the extent that reconfiguration into viable units takes time, the prohibition of leasing would force operation of the industry to be carried out, at least until permanent reallocation was completed, under sub-optimal scale, by a large number of part-time, inefficient operators. The costs imposed by an inflexible system that disallows low cost short term transfers of production rights would emerge from too many boats, operating at low capacity rates, imposing excessive congestion and perhaps local depletion effects on one another. In addition, we would expect that the large number of submarginal operators might engage in cutthroat price competition that would drive prices down to variable costs in the short run before reconfiguration was completed[8]. This would potentially increase the

[8] The preconditions for this are: 1) trades between commercial and recreational sectors are disallowed; 2) the TAC for the recreational sector is binding; and 3), there is a large amount of excess capacity in the charter industry that cannot be sustained in the long run. In this case, quota holders who were exiting would drive trip prices down to variable costs, since they would no longer be looking to recover full costs and remain in the charter business over the long run. This would persist until the quota holdings were reconfigured into units that were viable as long term entities.

consumer surplus enjoyed by anglers, but the inelasticity of demand suggests that these gains and the gains from expanding the market might be relatively small[9].

E. Charter Fleet Production Flexibility Benefits

Aside from these costs associated with inhibiting an orderly and rapid reconfiguration of quota among long term users during a transition period, there are other reasons related to short term use that favor allowing low cost leasing arrangements. Even if quota shares were in a long-term position of allocation among holders at scales that allow viable economic businesses, there would still be short-term needs to trade, lease, and rent quota to address short-term exigencies. Being able to lease generates production flexibility to both parties in a mutually beneficial arrangement, by allowing reallocation of quota when needed due to unforeseen events (such as weather, injuries or sickness, abundance shifts). These kinds of transfer benefits due to unforeseen circumstances within particular seasons are bound to be reasonably significant in the charter industry. In addition, once quotas are in place, it is virtually guaranteed that the complete allocation of quota will not be taken unless there is some flexible way to "mop up" remaining unutilized quota at the end of the season. This can be done by allowing between season carryover, but allowing leasing would smooth the use of existing allocated quota in each year.[10]

F. Information Benefits

In addition to the transition benefits associated with being able to reconfigure productive quota rights immediately, and the short-term exigency benefits of allowing temporary trading among owners due to exigencies, there is another important information benefit associated with allowing lease markets to develop. That benefit emerges because lease prices and permanent quota prices are inextricably linked, in the sense that lease prices "inform" permanent quota markets about the long-term value of a quota. This occurs because a competitive market for leases will generate lease prices that reflect the **current** marginal profitability of quota allocated to a sector. Current lease prices in the commercial halibut sector of a dollar per pound reflect the fact that an extra pound of halibut is "worth" a dollar to lessees, in the sense that they must be expecting to earn at least a dollar, in the current year, after selling the halibut caught and paying marginal expenses. In a similar fashion, a competitive market for permanent quota will generate quota transfer prices that reflect the expected present value of that extra unit to **future** production. A good rule of thumb is that, under stable conditions, the lease price $[P_L(t)]$ reflects expected current marginal profits, and the quota transfer price $[P_Q(t)]$ will be a multiple of the lease price so that $[P_Q(t)]= k[P_L(t)]$. The multiple k reflects the discount rate r for a comparably risky investment so that $k=(1/r)$. Current lease price/transfer prices reported for Alaskan commercial halibut suggest multiples in the range of 6-8, suggesting implied discount rates of 12-15%. The important point is that lease prices reflect information about current expectations of profitability, and transfer prices reflect information about future profitability. When current conditions are expected to

[9] We are making the assumption that charter halibut demand is inelastic, and that assumption is based on the report by Lee et. al. in Appendix 1 of the Addendum to the Public Review Draft of the Halibut Charter GHL Analysis (February 1, 2000). This study by Lee et.al. is of the Kenai Peninsula sports charter fishery and it is probably reasonable to believe these results can be transferred to other Area 3A subareas. The Kenai charter industry serves resident anglers with many substitutes as well as non-residents, some of whom come exclusively to fish in Alaska and others of whom fish as parts of multiple-destination trips. Without doing further similar analysis of other areas, it cannot be definitively concluded that anglers elsewhere value attributes similarly or represent similar cross-sections of the market.

[10] In the event that the charter sector's allocation is above the expected harvest level, allowing charter operators to lease excess quota shares to (1) other charter operators, or (2) the commercial sector would help ensure that the excess quota is harvested. Otherwise, a reduction in net economic benefits would result due to the excess quota remaining unharvested.

prevail in the future, we would expect transfer prices to be "informed" by lease prices and the two would be closely linked.[11]

G. New Asset Markets and the Value of Information

This information value of lease markets is important because in the first few years in which a quota market is operating, all participants do not have experience about how much quota rights "ought" to command in the market. Under these circumstances, permanent transactions will take place at prices that are not necessarily close to long-term market clearing prices. The uninformed will sell at bargain prices that they later regret, others will hold assets that they would like to divest, some will pay inflated prices that they also regret, and those most familiar with financial markets (rather than those most able to earn highest returns to the quota) will gain advantage over the ill-informed. Transactions taking place under these circumstances will mainly represent transfer payments and hence have effects on income distribution. They also generate some dead-weight loss, but perhaps more importantly they will generate resentment against quota systems by the disenfranchised. Interestingly, this is exactly why, during the implementation of the British Columbia commercial halibut quota system, industry representatives prohibited permanent **transfers** for the first few years while encouraging leasing. In particular, industry representatives were concerned that those without familiarity with a rights based system might sell out prematurely or at unfairly low prices because of their ignorance of the true market value of the permits. By allowing a lease market to develop and operate for a few years, prospective sellers and buyers were able to gauge a fair sale price for permanent quota by observing lease prices.

H. Prohibiting Leasing

What arguments can be put forth in favor of prohibition of leasing? The few fisheries that do restrict leasing (and Alaska's commercial halibut system stands out as one) do so over fears of the "absentee landlord" syndrome. This issue has repeatedly arisen in most fisheries that have implemented quota, limited entry permits, or other forms of property rights around the world. In a significant number of limited entry programs, for example, limited entry permits and vessels must be "bundled" and sold together. One of the first programs, British Columbia's salmon limited entry permit system (adopted in 1967) prohibited selling a limited entry permit alone in order to block individuals from owning permits without vessels. The main fear was that "outsiders" who were not bona fide fishermen might end up accumulating permits. In the British Columbia case, the fishing industry feared that "doctors and lawyers" would be favored by tax laws and would end up

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[11] The two prices are linked as a simple multiple when economic and policy circumstances are expected to be stable over the future. If costs or prices or the TAC or other circumstances are expected to change, the quota transfer price will reflect the anticipation of these changes, perhaps before they actually change. When conditions are expected to change favorably, transfer prices will rise in anticipation of those changes, creating capital gains in the transfer prices. The simple multiple link will be broken under these situations of expected change. Generally, we expect that a well-functioning asset market will produce lease and transfer prices satisfying: $E[P_Q(t+1)]-P_Q(t)=rP_Q(t)-P_L(t)$. The right hand side now represents expected capital gains in transfer prices between this and the next period. Note that when conditions are stable, these are zero and the simple multiple relationship between transfer and lease prices holds. However, if (for example) market prices for halibut are expected to rise in the future, the relationship between lease and quota transfer prices will be such that current quota prices are a multiple of the sum of current lease prices plus expected short term capital gains. Thus when conditions are expected to get better, quota prices exceed the average multiple and when they are expected to get worse, the multiple is smaller. In an important sense, this is similar to the observation that price/earnings ratios are high when the stock market expects rosy futures, and low when it expects a downturn. It also means that since rights holders stand to suffer capital losses due to unwise or unsustainable policies, that a stronger onus is on managers to promote value generating and stable policies.

owning salmon quota and leasing it to bona fide fishermen. These same concerns led to existing restrictions on leasing in Alaska's commercial halibut system.

An important point of perspective is that most mature markets that have a long history of property rights, ownership, and exchange generally encourage rather than inhibit leasing (or renting) of productive assets. As discussed above, the freedom to shift rights of use among users with different short term needs generates benefits to both owners and lessees faced with different short term needs due to imperfect planning and unforeseen events. These kinds of benefits are likely to be substantial in the halibut sports charter industry, particularly if the program is successfully implemented and enforced. Restrictions on leasing (such as allowing leasing but only if the actual owner is aboard) effectively impose a transactions cost on the use of short term rights transfers among willing traders. It is likely that the gains associated with short term production flexibility and with transition flexibility will be relatively large and will, as a consequence, leave intact the fundamental incentives for short term arrangements and trades among participants. But the costs imposed by the restrictions proposed will also be considerable, and they will certainly inhibit some trades and opportunities for mutual gain that might otherwise be consummated. These costs will ultimately be borne by quota holders whose quota values will be held down by restrictions on transfers.

I. The Absentee Landlord Issue

Since there will be some significant cost paid by quota holders who are not allowed to engage in short term transfers freely and at low cost, the questions arises: what is the corresponding benefit? How likely is the problem of absentee landlords? This is difficult to predict before a program is implemented and hence we have to look to other similar examples and to basic economic theory for guidance. What we do know from history is that most mature markets that involve productive assets ultimately allow leasing and short term contracting. In fact, it is difficult to think of many property rights systems in place around the world that prohibit short term leasing and only allow permanent long term transfers in order to eliminate absentee landlords. This widespread tolerance of leasing suggests one of two general possibilities. The first is that, while there may be absentee landlords owning and leasing out property rights in some systems, the benefits associated with short term production flexibility are seen by most participants as outweighing any of the social costs associated with absenteeism. The second possibility is that basic incentives in most systems fundamentally work against absentee landlords. This seems particularly likely when the productive use of the asset requires specialized skills. For example, in most commercial fisheries, specific knowledge of the habits and abundance of fish in different places at different times of the season is accumulated over years of fishing experience. A skipper/owner with such skills will, in principle, always be able to bid quota away from an absentee landlord who tries to operate a vessel from afar, because the skilled skipper/owner will be able to earn higher returns than the absentee owner. Thus an important point is that if industry-specific skills are important in the sports charter industry, then over the long run, these assets are less likely to gravitate to "outsiders" but instead likely to remain in the hands of "insiders". What kinds of specialized skills are likely to be important in the sports charter business? Some may actually favor absentee owners. For example, tour vessel companies may have superior marketing, and packaging and bundling skills that better serve the market niche associated with their primary business. On the other hand, fish-finding skills are clearly as important to many successful charter operations as they are to commercial fishing operations. The ISER recreation studies mentioned above, for example, suggest that the most important reason expressed for choosing particular sites by both residents and non-residents is "good chance to catch fish". To the extent that this is the case, and to the extent that sports charter operators can capitalize on word-of-mouth marketing or other means of highlighting catch rates, on-board skills may be the most critical specialized skill for producing the most value out of quota.

This fundamental uncertainty about the likelihood of absenteeism is likely to play a large role influencing the extent to which leasing or other short term rights transfers are made low cost or high cost. Unlike our centuries of experience with land institutions, rights-based systems in fisheries are new institutions, and managers and fishermen have not had much experience or chance to understand how they might operate under unfettered use. Experience with quota systems has shown that incentives, technology, inputs, and product configuration change under adoption of rights-based systems, often dramatically[12]. Hence it is not surprising that fears of radical change might leave participants uncertain about the wisdom of allowing the flexibility provided by leasing and other contractual arrangements. In many systems that have bundled permits and vessels in order to inhibit trades, the industry and regulators have eventually abandoned the program as the fears of absentee ownership have failed to materialize and/or the value of short term transfers have become apparent. In the end, the question is properly framed as one that compares the potential costs (and likelihood) of absentee ownership against the benefits of a very flexible system of production rights[13]. In this case, it is relatively easy to elucidate the benefits of flexibility but more difficult to precisely articulate the costs.

J. Enforcement Problems

It is also worth mentioning that attempting to prohibit or make costly short term (or, for that matter, long term) transactions such as leases is difficult to enforce in practice. It is envisioned that one way to prevent absentee landlords is to enforce the clause that the quota owner must be on board to legally land fish under the quota. This will in turn be either cheap to enforce or very costly in direct proportion to the fundamental forces driving the need to make short term transfers. If quota holders need and stand to benefit dramatically from being able to make short term transfers, then they will find ways to do that and to minimize the transactions costs. The history of enforcement is replete with examples of the ingenuity brought to the task of thwarting costly restrictions and regulations that inhibit otherwise sensible gains from mutual trade. If it turns out that the industry needs cheap and easily consummated short term transfers of rights, then prohibiting them (or making them costly with cumbersome restrictions) will require a considerable amount of enforcement effort. In contrast, enforcement will be easy and cheap precisely if there are no substantial benefits to short term trades.

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[12] For example, in the Australian Bluefin Tuna fishery, quotas caused fishermen to stop fishing immature small tuna (for canned markets) altogether and switch to larger older tuna for lucrative sashimi markets. In New Zealand, the red snapper fishery converted from one prosecuted with mixed trawl gear to one prosecuted with long line, again in order to target the lucrative Japanese trade in live fish. In British Columbia, processing and marketing switched from high volume, low value added frozen operations to high value added fresh niche marketing conducted by smaller operations scattered over wider geographic expanses. In New Zealand, quota holders in the dredge scallop fishery operate their own commercial spat enhancement cooperative, paid for by quota holders. Fishermen involved in New Zealand's rock lobster, paua, and snapper fisheries have implemented self-funded enforcement and stock assessment programs, operating in addition to, and complementary with, government programs. (Wilen and Homans, (1997), Casey et. al. (1995), Major (1997), Branson (1997).

[13] This is how the issue is summarized up by a fishing industry representative [Branson (1997)] in New Zealand: "the ability to buy, sell, exchange, and trade quotas has naturally resulted in some redistribution of fishing effort. . .Over time, a number of fishers have sold their quota and left the fisheries for pastures green. . .whereas original fishers may have had a reasonably consistent fishing pattern, exploiting on a regular basis their preferred and established fishing grounds, current quota holders are more likely to allocated their quota into areas of more favorable catch by the simple expedient of making contract fishing arrangements with alternative fishers".

K. Impacts on Angler Surplus

The most important impact of a quota system on recreational anglers would be the generation of benefits associated with "rationalization" or the change in incentives to maximize quota values. In a system with a binding TAC constraint, charter owners would reduce costs under a quota system, generating more producer surplus for themselves which would be capitalized into quota prices. In addition, however, we would expect innovations in products and services marketed that would maximize the value-added of quota held. These kinds of innovations would tap different market niches by offering a new range of trips, better tailored to potential market demand. For example, new markets might be developed attracting catch and release anglers associated with tour vessels. These would require only minimal quotas (for fatally hooked fish, for example), and they might be offered at attractively low prices. Or, markets in which fishermen are charged according to pricing schemes that reflect fish harvested might be developed. Importantly, under open access (and with a binding TAC constraint) these kinds of markets might be submarginal to an industry with input distortions and overcapitalization influenced by a race to harvest. Whatever the configuration of changes in output configuration, the overall impact can be looked at as a shifting out of the demand curve, signifying higher willingness to pay for given numbers of trips. The area under the new aggregate demand curve would be a measure of surplus changes associated with the quota program overall. Allowing freely and low cost short term leasing and transfer options would add aggregate angler surplus at the margin to the system as a whole. This would be achieved by reallocation of quota from low willingness to pay users to high willingness to pay users and thus would involve some distributional consequences. It is difficult to be more precise about where quota would gravitate to and from, however, without being able to predict the kinds of product changes that are likely. (*See also Section 4.4 for a discussion of the implications of transfers within and between sectors.*)

4.2.5.2 Option 2: Transfer of QS (permanent) and/or IFQs (leasing)

1. prohibit transfers between charter and commercial sectors
2. allow transfers between charter and commercial sectors
   - A. 1-yr. One way transfer from commercial to charter
   - B. 3-yr. One way transfer from commercial to charter
   - C. two-way (between commercial and charter sectors)

suboptions under 2:

1. designate QS pool into two classes for transfer from charter to commercial sector: transferable (25%) and non-transferable (75%) pools on an individual's basis
2. cap the percentage of annual IFQ transfer (de facto leasing) between sectors not to exceed 25% of total IFQs per year from charter to commercial
3. on percentage of annual QS transfers between sectors not to exceed 25% of total QS and a range of between 0-10% of QS per year from charter to commercial
4. a range of 0-10% leasing of charter IFQ to charter from charter for the first 3 years

Option 2 and the various suboptions are associated with the issue of restricting the flow of either temporary or permanent quota **between** the charter and commercial sectors. In contrast, Option 1 policies we presume to be associated with transfers **within** the charter sector. Using a similar argument as discussed above, many would argue that the free flow of quota across sectors would produce the highest overall values from the halibut resource as a whole. In other words, with unrestricted transfers possible between the commercial and charter sectors, we would expect quota to gravitate into the sector that is willing and able to pay the highest price. The sector able to pay the highest price would, in principle, also be the one generating the highest rents and hence the highest efficiency benefits from the resource.

Arguments against allowing free transfer across sectors involve distributional concerns. For example, we might decide that access to the resource is more important than trying to extract the highest value from the resource. In the charter halibut case, proponents of restrictions that inhibit transfers from the charter sector to the commercial sector are fearful that such transfers would be likely, and that as a consequence, sports anglers' access to the resource would be restricted. Other proponents of restrictions believe that transfers are more likely to occur from the commercial sector into the charter sector. For these stakeholders, access by the commercial interests is threatened by free and low cost transfers. In the final analysis, we need to know something about the likely direction of transfers and the factors determining which sector would be likely to express "excess demand". This is a complicated question, because it depends upon the relative contribution that halibut quota per se makes to the values generated by each sector. In addition, the answer may differ as the TAC rises and falls due to environmental and biological perturbations. It is important to note, however, that transfers between sectors, regardless of direction, would ultimately be limited in scale. This is because there are countervailing forces set in motion that operate as transfers take place across sectors. In particular, as quota is transferred out of one sector, the marginal value of remaining quota in that sector would be expected to rise. Similarly, there would be diminishing returns to added quota in the receiving sector, and marginal willingness to pay would ultimately fall as quota increased. These forces operate to restrict the ultimate flow of quota so that it would be unlikely, even in the most unrestricted circumstances, for one sector to be able to "buy out" the other sector.

A. Inter-sector Trades: Short Run

At the same time, as the discussion about production flexibility above suggests, there are clearly mutually beneficial trades possible between sectors that a strict focus on economic efficiency ought to explore. What would we expect to happen under more or less free flow of quota between sectors? This is difficult to precisely predict at this point, because it is not clear how the introduction of quota into the halibut charter sector will affect its structure in the long run. Nevertheless, we can speculate about where the pressures are likely to be at the beginning of the implementation of such a program. Some pertinent information is given by lease prices for commercially caught Alaskan halibut, recently averaging roughly a dollar per pound. One way to examine the issue of the likely direction of flow is to ask: how likely is it that a charter vessel might find it profitable to purchase a marginal fish from the commercial sector under current conditions? At an average size per fish harvested of 20 lb, and an average charter vessel harvest (take) rate close to 1 fish per person/trip, the marginal quota lease cost to the charter sector to take one more client as a result of traded quota would be about $20[14]. At present, halibut charter trips cost non-resident anglers about $100-125 in direct charter boat fees, another $50 in miscellaneous expenses, and this is in an open access setting in which the halibut "input" is free[15]. In the very short run, since the charter sector has been operating as an open access sector, the marginal quota value is close to zero and there is not likely to be strong pressures to buy quota from the charter sector.

[14] Note that we need to separate catch and harvest (take) statistics here. The Lee et. al study (2000) shows an average catch rate of about 1.74 for an average Kenai halibut-only trip, with 0.79 kept and 0.94 released. Average weight per trip (for exclusive and combo trips) is about 37 lb, presumably total weight of fish caught, giving us an average weight of about 21 lb per fish caught. We would expect a tendency to keep the larger fish caught, hence an estimate of 20 lb per person trip seems reasonable.

[15] Also from the Lee et.al. study (2000). Note that these calculations are intended to be less for precise prediction and more for illustrative purposes.

B. Inter-sector Trades: Post Charter Quota Program

Over the longer run, the issue is less clear, however. The big advantage of a quota system is that the conferring of property rights gives individual operators incentives to increase the value added per pound of quota used. The charter industry has historically operated under conditions of open access. These conditions have influenced the kinds of packages offered to anglers, the kinds of non-price competition among charter operators, the nature of the typical fishing trip, catch and release rates, and the whole spectrum of attributes of the service sold and the cost of producing it[16]. What we can say is that it is likely, **under initial conditions**, that the incentives to transfer large amounts of quota from the commercial to the charter fleet are not significant[17]. The need for quota by the charter sector is trip-demand limited, and the current infrastructure has more or less expanded to the point where there isn't much additional profit to be gained by having marginal fish allocated to the charter sector.

On the other hand, **under future conditions**, after the quota system is implemented, charter operators will be under self-generated incentives to explore opportunities to generate more profit out of each unit of quota held. In commercial fisheries this incentive to generate profits has resulted in three kinds of changes. First, it has led to consolidation and reconfiguration of quota to those most able to generate value. Second, it has led to changes in production processes in order to save costs. And third, it has led to changes in the product

[16] Most importantly, the essential resource services have been supplied free of charge to industry users. The main resource service here is the flow (harvest) from the stock. In addition, the abundance per se provides production services by making high catch rates possible. Other things equal, we would expect overuse of a free inputs. The fact that there is no charge to remove halibut from the stock would most likely be manifested in too many vessels operating at less than full capacity over the season. We might also expect localized over fishing, so that vessels must travel farther in order to access higher abundance and catch rates. This might lead to overcapitalization (vessels built to travel faster to distant locations), excessive search and fish finding costs, etc.

[17] This conclusion also is predicated on the assumption that the TAC will remain as it is currently, which is relatively large for both commercial and sports sectors. We would expect that the TAC would fluctuate in the future, however, and this would tighten the constraint and raise the marginal value of quota in each sector. As the TAC is reduced, the commercial sector will experience rising wholesale prices, which will, in turn, raise the marginal willingness to pay for quota in that sector. Analysis by Hermann (2000) and others suggests that exvessel halibut demand is price elastic. Hence a given percentage decline in TAC to the commercial sector will generate a less than proportional rise in exvessel prices. To a reasonably approximation, if quota prices are proportional to exvessel prices, we would predict a less than proportional rise in commercial halibut quota prices for a given percentage reduction in commercial TAC. On the charter side the issue is less clear. We do not know how a tightening constraint on the charter industry would impact marginal willingness to pay for quota. We do know that most anglers currently take about one fish per trip and hook about two fish. Hence it would be possible, in the face of a reduced TAC, for the industry to reduce trips in proportion to the TAC reduction, but it is not clear how much trip prices would have to rise to do this. For tourists, the marginal cost of a halibut charter trip is small compared with total travel costs to Alaska and hence their demand may be relatively inelastic. For residents who mainly fish to fill their freezers, the marginal cost of a trip is higher as a proportion of the cost of acquiring the fish and hence their demand may be relatively more elastic. If total charter trip demand is inelastic, a proportional TAC reduction that is matched by a proportional trip reduction will generate more than proportionate changes in trip prices. If a similar relationship holds between trip prices and quota demand prices, a reduced TAC for the recreational sector may cause its marginal willingness to pay to rise faster than is the case for the commercial industry. Thus under these circumstances, when the total TAC fell, quota would flow from commercial to recreational and perhaps vice versa for TAC rises. Without further exploration of the demand for charter halibut trips, however, this is mostly speculative and a confident prediction would require knowing something about the demand for halibut charter trips and the manner in which that depended upon landed halibut.

sold, toward higher value-added products with different attributes[18]. We can expect that introduction of a quota system into the charter industry would have similar impacts. In the long run, we would anticipate quota to agglomerate in units that minimized costs of operation. This would likely include matching vessel size, firm capacity, and utilization rates to different markets in different geographic regions. For example, in regions dependent upon walk-on trips associated with tour boats and other local tourist business, we might expect quota to be held be entities that can take advantage of "economies of scope", or the bundling of several tourist services handled by a centralized staff. That might mean quotas used by multi-service and multi-client tour companies whose principle business is activities other than halibut charter trips. The kinds of trips that might best suite this market could be half-day trips, specializing in giving amateur anglers the change to hook and release a fish, perhaps more than actually harvesting a fish. These would be offered at prices and with attributes that successfully compete with other bundled side excursion day-trip options available to tourists, such as helicopter rides to glaciers, historical tours, or whale watching trips. In other areas where more serious anglers come for the high quality of fishing almost exclusively, we might find different single fishing specialist owner/operators serving different exclusively fishing markets, from the highly skilled to the unskilled, from the urban non-resident to the Alaskan resident. Some skilled angler specialist operators might offer trips to fishermen interested in hooking and releasing fish, whereas others may offer trips to (for example Alaska residents) interested in filling their freezers with fish. All of these reconfigurations would be expected to reduce the initial excess capacity, tailor existing capacity to different markets, and lower the capital cost associated with charter fishing. Second, we would expect charter operators to change behavior in ways that reduced variable operating costs. Quotas could conceivably reduce travel and searching time and other variable input-affecting decisions, thus reducing variable costs. Finally, we would expect that changes would take place in the kinds of products, services, and trip attributes offered. Again, we might expect product differentiation that was better tailored to different markets. For example, certain operators might target only Alaskan residents or avid non-resident fishing by offering specialist trips in parts of the season and in geographic areas in which CPUE was highest (or fish size was largest, or some other attribute of "quality" fishing most attractive to avid fishermen)[19].

[18] Note that these kinds of changes are undertaken after quotas have been introduced because they all add value to quota held by quota holders. Without quotas, under regulated open access with a binding TAC constraint, the insecure property right to harvest leads fishers to invest in means to capture a larger share of the resource. This is generally manifested in vessels that are built to travel fast to distant areas and hold large volumes to compete in short derby fisheries. We also see redundant labor hired as backup during short seasons, lack of care in storing and on-board fish processing, bottlenecks in processing plants, and generally lower valued end products associated with lower quality raw inputs. Granting secure rights shifts focus from maximizing volume to maximizing value per unit of quota.

[19] Some of these attributes of the service supplied and the production process generating the services already exist. But there would be enhanced incentives to alter services, create new market niches, and save production costs under a quota system. Importantly, however, the quota must be binding to generate new values. It would be possible to implement a non-binding quota program that granted much more quota than has historically been utilized and that prohibited inter-sector trades. In this case, the marginal value of the last unit held would be zero until demand growth caught up with the large supply granted via the quota system. Alternatively, a quota that was generous under conditions of abundant biomass and high TACs could become binding as the TAC was reduced due to abundance declines.

C. Short- and Long-Term Trade Flows

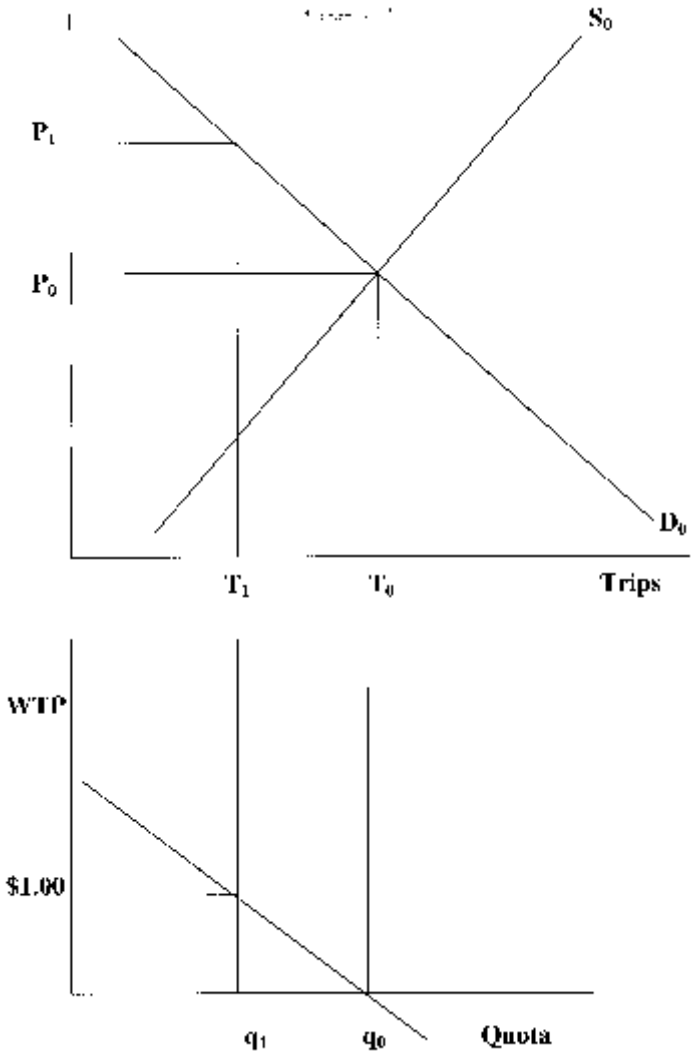

Figure 4.2 Short and long term trade flows.

These kinds of short- and long-term changes can be seen in Figure 4.2. In the upper diagram, the current pre-quota equilibrium is depicted by charter trip demand and supply curves D_0 and S_0. These depict an industry in an open access equilibrium, at which point the price of trips is determined by market demand for to portfolio of existing trip services and the costs of producing those services. This produces a market clearing price for trips of P_0, at which point T_0 trips are demanded each season. This equilibrium is characterized by one in which a critical input, namely the halibut resource, is priced effectively at zero. In the lower panel we depict this by drawing a quota demand curve. In the open access equilibrium, we would expect that the marginal willingness to pay for quota is zero.

Without further changes in the structure of the halibut industry, we would expect that free and open transfer between the charter and commercial sectors would probably lead to a short-term transfer to the commercial sector. This is shown hypothetically by a reduction in charter quota used from q_0 to q_1, with the flow determined by the one dollar per pound price presumed to be the current (marginal) willingness to pay of the commercial sector. If temporary transfers only were allowed, the commercial sector would lease quota as shown away from the charter sector. This would reduce the number of trips conducted in the charter sector from T_0 to T_1 initially. Note that this reduction might be quantitatively large or small; the diagram is merely illustrative and not intended to suggest any particular quantitative anticipated result. The price per trip would rise to P_1 and the difference between the market price and the new marginal cost per trip would be the implicit value of the quota used to support the new trip demand. Note that these transfers would reduce angler welfare by an amount associated with dead-weight loss triangle above P_0. If permanent transfer were made, the quota transfer would simply be made at transfer prices rather than at lease prices and the welfare impacts would be identical to the case where leasing only is allowed. Those who sold quota would thus get a multiple of the lease price, say 6-8$ per pound rather than the lease price.

Overall, then, the implication of allowing transfers between sectors would be at least **temporary** pressures to shift quota, most likely from charter to commercial sectors. Figure 4.2 shows the primary short-term impetus for changes, expressed in terms of temporary equilibria. It is important to point out, however, that

whether these changes actually materialize will depend upon how fast the charter industry reconfigures under the quota system. As pointed out above, adoption of a quota system will almost instantly generate incentives to create new value per unit of quota held by the charter industry. These changes will include consolidation of suboptimal holdings, shifts between geographic areas, reduction in fixed capital and variable inputs, and changes in the mix of products and services offered. The net result of these changes can be depicted qualitatively in Figure 4.3. In this diagram, quota consolidation and input reduction are shown as reducing the marginal costs from S_0 to S_1 (supply curve) for quality constant trips, whereas the demand shift from D_0 to D_1 represents creation of new market niches and other services on the output side[20]. Together these changes induced by the new incentives provided by a quota system raise the marginal value of quota, depicted by a shift in the quota demand curve from Q_0 to Q_1.

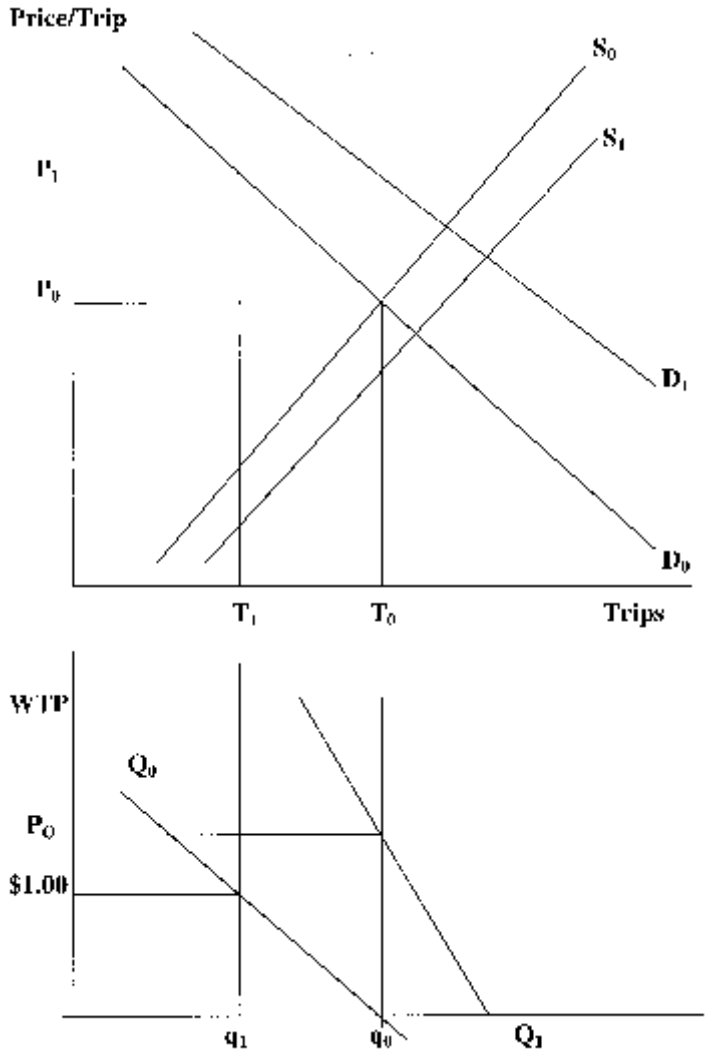

Figure 4.3. Value per unit of QS responding to quantity changes.

In summary, it is likely that within a very short time of implementation, the incentives for value-added creation would increase the value of quota devoted to the charter sector as

[20] It is worth emphasizing again that the preconditions for this kind of new value creation include a constraint that is binding. With high TACs in the commercial halibut industry and non-binding allocations to the sports charter sector, the marginal value of additional allocation is close to zero. We would expect nevertheless that charter companies have configured the services they offer and the means of production in a manner influenced by the fact that the resource is provided free. Generally this would imply some overcapitalization and input distortion. If the TAC is reduced in this setting to the point where the marginal value of the sports charter allocation is positive, we would expect the emergence of a race to catch fish in the charter sector. This would particularly be the case if the reduced TAC was enforced by a reduction in the charter season length. In contrast, under a quota system, if the TAC is reduced (or if inter-sector trade is allowed) enough to generate a positive shadow price, the tightening constraint will be mitigated by attempts to generate more value per unit quota held. The changes mentioned above are illustrative of the kinds of changes we might expect. These are only illustrative however, and experience with commercial fisheries has revealed that there are always surprises and unanticipated changes that develop as incentives switch from a quantity or share maximizing system to one that maximizes value per unit quota held.

depicted in Figure 4.3. It is not clear exactly how fast the actual production and market changes in the charter sector would occur, but market for permanent transfers would almost immediately capitalize initial expectations about those values into quota transfer prices. At the same time, lease prices would be determined in a contemporaneous lease market, reflecting the transferability rules in place and the degree to which willingness to pay outside the sector was permitted to affect short-term allocations. A prohibition on within-sector transfers would leave the halibut charter sector operating as discussed above under Option 1. The impacts of allowing transfers between the charter and commercial sector would depend importantly on the values generated by rationalizing and transforming the charter sector after quotas. This is very difficult to forecast at this point because the history of quota implementation in other fisheries has shown that there are almost always surprises in the sense of unanticipated effects. Of major importance is whether there would be enough value-added generated to justify the charter sector being able to bid quota away from the commercial fishery. In Figure 4.3 we have drawn the new post-quota program quota demand curve in a manner depicting higher marginal values of P_Q (at the original allocation) than the commercial marginal values (here assumed to be $1.00). If this were indeed the case, we would expect that the pressure would be for the charter sector to want to lease and/or buy quota from the commercial sector. This is an empirical question that is difficult to answer at this point, however, since it is not clear how quotas will change value-added incentives in the charter sector.

D. Impacts on Angler Surplus

A main reason why transfers between sectors might be promoted is that it would allow quota to gravitate to highest economic uses as reflected in willingness to pay. As we have discussed above, the direction of flow is not easy to predict and it is likely to change as the TAC is adjusted upward and downward in any case. For example, with the generous TACs in place currently, it seems likely that the charter sector would not place a high value on quota at the margin, and hence any transfers under current condition would flow from the charter to the commercial sector. With excess charter quota supply, this would not result in any substantial loss of consumer surplus but a gain in overall efficiency as quota was put to financial use in the commercial sector. On the other hand, with a much tighter constraint associated with a lower TAC, the marginal value of quota to the charter sector would rise, and conceivably to a point that could induce transfers from the commercial sector. In this case, a policy that allowed transfers would not only increase aggregate economic efficiency from the resource, but it would increase the surplus enjoyed by anglers who would have been constrained under a system without transfers. This would come about with some corresponding change in consumer surplus enjoyed by consumers of commercial-caught halibut. (*See also Section 4.4 for a discussion of the implications of transfer restrictions under conditions when the TAC is binding or not binding.*)

4.2.5.3 Option 3: Block Restrictions

1. any initially issued (i.e. unblocked) charter QS once transferred to commercial sector shall be:
   A. blocked
   B. blocked up to the limits of the commercial sweep-up and block limits
   C. Unblocked
2. allow splitting of commercial blocks to transfer a smaller piece to the charter sector
3. allow splitting of commercial blocks once transferred to the charter sector

Block restrictions are an unusual restriction among the quota programs that have been implemented around the world. It is safe to say that few other programs have elected designs that bind up the ability to reconfigure and repackage quota by locking in original allocations. The reason is simple: most view the very advantage

of quota systems to be the incentives provided to reconfigure wasteful open access allocations into more efficient allocations suited to generating the maximum value from the resource. There are exceptions to this rule. For example, the British Columbia commercial halibut program used a form of block restriction during the early transition phase, but for different reasons. In the B.C. case, each person's initial allocation was divided into two blocks that could be leased (but not sold) for the first few years. Individuals could increase their short-term halibut use rights by leasing blocks from other willing lessors, but only up to two blocks. Blocking in the B.C. case was thus used to slow consolidation and excessive aggregation of quota, during the "burn-in" phase in which participants were learning about the operations of the quota market.

In the Alaska case, blocking was introduced to maintain a quota market for smaller part-time operators. The thinking was that it was desirable to leave much of the many small initial allocations available to the part-timers to which they were allocated. This was implemented by leaving all initial allocations of quota less than 20,000 lb in the original non-severable blocks. Individuals can hold up to two blocks in any area, and "sweep-up" provisions were made to permanently reaggregate up to two original allocations of less than 3,000 pound into new subsequently non-severable blocks. It was anticipated that these blocking restrictions would thus make more quota supply available to small quota entities, and reduce the quota transfer prices by restricting their values.

Recent examinations of the quota market suggest that blocking restrictions have had important impacts on the market for quotas in the commercial sector. The Dinneford et.al. study shows quite clearly that blocking affected quota transactions prices significantly. Unblocked transfers in Area 2C in 1998 cleared for $10.62 per pound, whereas blocked transfers cleared for $9.72, $9.35, and $8.52 in large, medium, and small blocks respectively.[21] These price differentials are large, but not surprising given the high proportion of the total potential market that has been allocated into the blocked categories. For example, in Areas 2C and 3B, close to 70% of the quota is blocked, whereas in Area 3A about 35% is blocked. There are several ways to look at the economic efficiency implications of these blocking restrictions. In an important sense, the difference between blocked and unblocked prices represent the cost, to Alaska, the nation, and the current owners of quota, of locking in the original inefficient quota allocations rather than allowing efficient reconfiguration. Another way to look at these price differences is as the value of the subsidy provided to the group of small-holder and part-time operators who are encouraged to operate at inefficient scales and input levels. Presuming an average difference of 1 dollar per pound of permanent IFQ, and an average TAC of 55 M lb, the efficiency costs of these restrictions are roughly $55,000,000 in present value terms.

How would various block restriction options affect the charter and commercial sectors? Basically, this question cannot be answered without knowing what direction quota are likely to flow. As discussed above, whether quota that is transferable between sectors is likely to flow from commercial to charter or vice versa depends largely on the (as yet unknown) kinds of changes that will occur in services offered, costs of operation, and quota holding among charter vessels after quotas are introduced. This is a huge unknown, but it is summarized in the basic question: after quotas are introduced into the charter sector, will charter quota holders/vessel owners be capable of paying the net commercial value for a marginal landed fish? The answer is likely to be yes, at the margin. At the same time, it is unlikely that the amount of potentially transferable quota will be large. This is because the demand for quota is ultimately limited by the market for guided sports halibut trips. And the market for sports trips, in turn, is one in which the Alaskan charter industry competes with a range of other opportunities for tourist dollars and time.

[21] These prices (reported in Dinneford et. al., 1998) are for transfers made within the 35-60 foot vessel class, in Area 2C, in the first quarter of 1998.

This being said, whether block restrictions are worth imposing on either sector depends whether the presumed values of these restrictions are worth the significant transactions and enforcement costs of implementing them. Sub-option 1 above restricts quota transferred into the charter sector to be of the size associated with the "blocks" being transferred out of the sports sector. First of all, it is important to note that this policy will be irrelevant if quota tend to flow from commercial to sports. On the other hand, if a commercial market for sports quota develops, then it is possible that the relative value in the commercial sector will exceed the sports value at all block levels under some TAC conditions. Then the efficiency implications of the block restrictions are fairly clear. They will be the difference between the quota price that might emerge without any block restrictions and the actual price that does emerge with them. For example, suppose that a "small" charter quota is transferred in blocked form to the commercial sector in Area 2C at a price of $8.52. Then the efficiency costs of the block restrictions would be something in the range of $2.00 per pound, or the difference between the unblocked price the and the blocked price[22]. Note too that the impacts on charter sector anglers would depend upon direction of flow and the manner in which that was inhibited by block or other restrictions. With a binding TAC, flows of quota out of the charter sector would be achieved at the expense of consumer surplus enjoyed by charter anglers, since the extra quota would be freed by reducing the number of trips and raising price per trip.

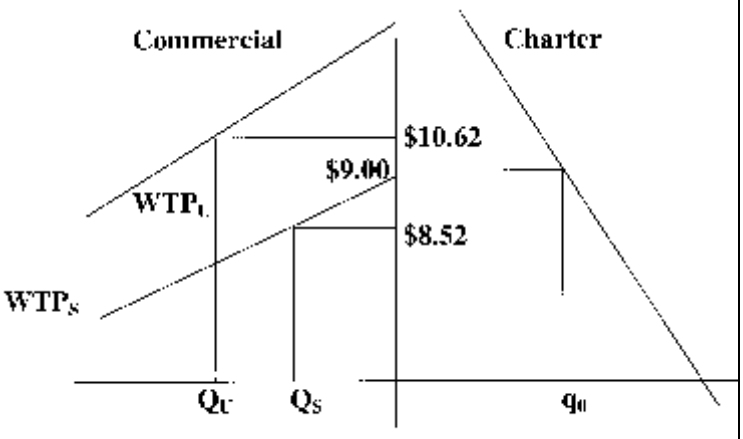

Figure 4.4 Marginal willingness to pay for quota shares ($/lb).

Note that block restrictions in the commercial sector may also completely inhibit trades that would otherwise occur between willing buyers and sellers in the two sectors. For example, suppose that an initial holder of quota in the charter sector is granted a small amount, say 3,000 lb. Suppose further that the quota, in its highest and best use in the charter sector, is only worth about $9.00 per pound. Then the block restrictions would require the charter owner to sell only into the small block market, where restrictions keep prices low at $8.52 per pound, below his willingness to sell. On the other hand, free transfer would generate a price of $10.62 per pound. There would be efficiency losses in both sectors associated with the fact that a mutually beneficial trade can be made, but is blocked by trade restrictions. These possibilities are depicted in Figure 4.4 where back-to-back marginal willingness to pay diagrams are presented. This depicts the initial allocation in the charter sector to be such that, after quota implementation, the marginal value of another unit of permanent quota is $9.00 per pound. On the left-hand diagram, there are two marginal willingness to pay curves representing commercial quota demand curves for unblocked (U) quota and blocked quota in small (S) blocks. As this is drawn, the proviso that transferred quota must be blocked results in no market developing and no trades consummated. This is because the willingness of commercial buyers to pay for small blocked quota is only $8.52, whereas charter owners value their marginal quota at $9.00. On the other hand, a rule that allowed transferred quota to remain unblocked would result in a shift into the unblocked commercial market since there are gains from trade between that market and the charter sector.

[22] This can only be approximated because freeing the whole market from block restrictions would raise blocked prices and lower unblocked prices. The eventual free market price is probably reasonably approximated by the weighted average of blocked and unblocked prices.

Suboptions 2 and 3 above would be irrelevant if the tendency were for quota to flow into the commercial sector. If trade flows the other way, however, these policies could have an impact on relative economic efficiency. Suboption 2 allows splitting of commercial blocks into smaller units that can be transferred to the charter sector. This option would actually encourage smaller blocked units to be put up for sale rather than unbundling of larger units. This option would have a marginal effect on the commercial quota market, by making fewer larger blocked units available and more relatively smaller blocked units available for sale in the commercial market, after the quota were shifted to the charter sector. This option can also be examined with Figure 4.4 as follows. The WTP_U is a willingness to pay curve but it is also a willingness to sell curve (as is the case with WTP_S). Under the circumstances drawn, small block holders would be willing, at the margin, to give up commercial blocks for $8.52 per pound, making trade to the charter sector feasible since they are willing to pay $9.00. On the other hand, at $10.62, unblocked quota is too valuable in the commercial sector to sell to the charter sector. Hence we would see flow from small block holders whose market prices are lower than the charter sector willingness to pay. This would generate an efficiency benefit over the whole system associated with being able to shift quota between sectors. We would expect these effects to be small. Suboption 3 allows blocked quota to be split once in the charter sector, but sold out of the commercial sector in original blocks. This option would have the effect of enhancing the current markets for (the cheaper) small blocked quota in the commercial sector similar to what is depicted in Figure 4.4 for suboption 2. Presuming a charter quota value that makes transfers worthwhile, the most significant pressures would occur in the lower-priced blocks, since the arbitrage gains are largest there. In principle, this policy would enhance the prices obtained by sellers of commercial quota to the level reflecting the charter sector's willingness to pay. For example, if the charter sector can afford to pay $9.00 per pound, then they would buy that quota from sellers of small and medium blocks willing to part with quota at prices less than that. This would, in principle, flatten the current price profile by block size. Again, however, it is likely that this would only occur if demand in the charter sector were strong enough to induce significant quota transfers. It is our expectation that this is unlikely, due to the fact that the charter sector is not significantly limited by current quota allocations.

4.2.5.4 Option 4: Vessel Class Restrictions

a) from A, B, C, and/or D commercial vessel category sizes to charter sector
   1. Leasable
   2. Non-leasable

b) from charter to commercial:
   1. D category only
   2. C and D category only
   3. B, C, and D category

c) initial transfer from undesignated charter to a particular commercial vessel category locks in at that commercial category

The impact of vessel class restrictions again depends upon the direction of quota flow. If quota ends up flowing from the commercial to the charter sectors, suboption 1 comes into play, otherwise 2 and 3 could be operative. Suppose first that quota is transferred out of the commercial sector. The implications of suboption 1 are similar in spirit to the analysis we discuss above regarding the implications of blocking. In particular, consider system in which quota can be either leased or permanently transferred, from any or all of the vessel size classes A,B,C, and D. As we discussed under option 2, the advantage of allowing both leasing and transfers across sectors is that quota will then gravitate to highest and best uses in terms of economic returns. This would occur with some relocation, of course, and some might object to the distributional consequences of the change in activity and access as a result of transfers. Our best guess is that these would not be significant because we believe that there is limited absorption capacity possible in the charter sector. If this is the case, allowing free flow of quota will cause self-limiting counter-forces that will choke off quota flow.

For example, if it is correct that the charter industry is essentially trip-demand driven in a competitive tourist market, the actual marginal value of extra quota to the sector will diminish rapidly as extra quota is added. Thus the (initially) higher prices attracting quota to the charter sector would drop relatively rapidly with the first transfers, and there would no longer be incentives for further transfers.

During the transfer phase, however, the market for either leasable or permanently transferable quota would be one in which quota would gravitate from low-valued markets into the charter sector. The additional quota would increase the number of trips offered and reduce the price per trip, generating additional angler consumer surplus. From the Dinneford et. al results, quota allocated to 60 foot and larger vessels seems to command the highest prices, whereas quota held by vessels of less than or equal to 35 feet seems lowest valued. This relationship generally holds across blocked and unblocked prices and at different sized blocks also. This tells us that a system without restrictions on the commercial source would probably wind up with sales coming first from small block owners in the vessel size class of 35 feet and. Again, to the extent that these are relatively lower-valued sectors, transfers would generate economic efficiency benefits by reallocating to low (small vessel, small unit, blocked) sources to high valued (charter) uses. These transfers would flatten the quota price differences between size classes and between block size classes somewhat, depending upon the scale of transfers.

Our discussion of the difference between leasable and non-leasable options above carries over to these policy options. There are good reasons to allow leasing (reallocation flexibility in transition to new configuration, short-term production flexibility gains, information gains). Furthermore, if policy is going to allow permanent transfers, it seems sensible to allow leasing also. Alternatively, the British Columbia model of using the lease-only option before permanent transfers are allowed would allow market participants (and regulators) to feel out the direction of likely changes once transfers were allowed to be permanent.

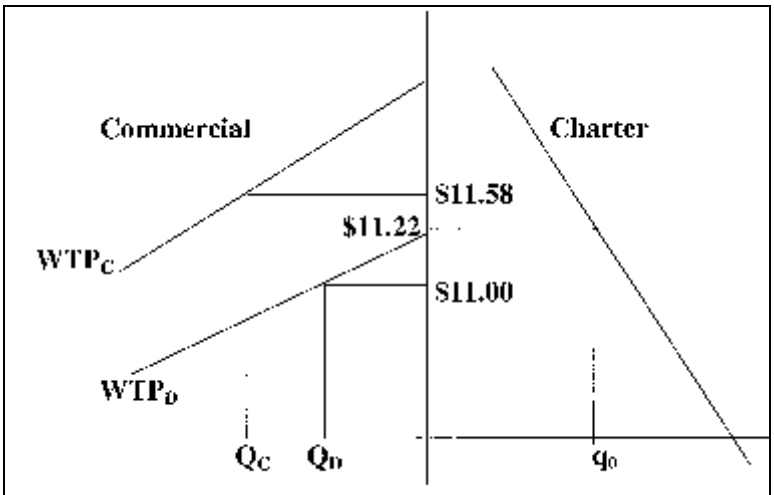

Figure 4.5 Willingness to sell quota shares ($/lb).

Suboptions 2 and 3 would be operative if the value of quota in a reconfigured charter sector was generally not as high as quota in certain sectors of the commercial sector. In this case, quota would be purchased from charter grantees by commercial fishermen and impacts would depend upon the nature of restrictions on purchases. Any restrictions to particular vessel categories would have efficiency reducing impacts compared with the alternative of allowing quota to flow to highest and best use. Since vessel size classes C and B appear willing to pay the most for quota, we would expect that most transfers would take place between charter holders and owners in these classes. The general rule of thumb would be that the less restricted the transfer options, the more total quota would flow into the commercial sector. Hence a policy that allowed all charter quota to end up as unblocked and transferable across classes would generate the highest transfer prices and the most quota transferred. In particular, we would expect all vessel classes and all ranges of block markets above the willingness to pay of the charter sector to bid for quota. The strongest demand and hence components likely to first receive quota would be larger vessels buying unblocked quota. These points can be seen in Figure 4.5 which depicts quota demand by vessel size class, with willingness to

pay highest for C class vessels and lower for D class vessels. As we have drawn Figure 4.5, the charter willingness to sell is at $11.22 per pound. Thus a restriction that allows trades between the charter and C sector would generate trades, since their willingness to pay is greater than the willingness to sell of the charter sector. On the other hand, a policy that restricted trades to those only between the charter and D class vessels would effectively not operate under the conditions shown. In terms of the 3 possibilities listed under suboption 2 above, there will probably be little difference between the option that allows trades to vessel classes C and D, and the option that allows it to C, D, and B. However, if B class vessels are allowed to buy quota (and they are willing to pay a higher price than C or D vessels then additional quota may flow into the commercial sector. That is because some charter operators would be paid the price that would induce them to sell their quota. Restricting trades to D class vessels would limit the transfer amounts and the transfer prices compared with the option including C class vessels. For example, in the case in Figure 4.5, restricting trades to D classes only would result in no trading opportunities. It bears emphasizing that the demand curves (and the associated supply curves which are determined by the TAC decisions) depicted in the Figures are snapshots in time pertaining to certain wholesale market and abundance conditions. Any changes in market conditions would shift all the quota demand curves in the commercial sector and any changes in abundance that affected TAC allocations would also change the willingness to pay of various sectors at the margin.

If the Council wishes to allow the charter sector to be able to purchase quota shares for the lowest price they will allow them to purchase quota from any commercial class. Most of the share will likely come from the D class blocked shares, if there is incentive to purchase from the commercial sector. As discussed above, these shares have typically commanded the lowest price, and therefore would be the least expensive commercial shares for charter operators to purchase. If the charter sector were to purchase quota from this class in the long run, it would make less quota to entry level commercial fishermen and more available to entry level charter fishermen. Note that this only referred to transfers from the commercial to the charter sector. While the discussions above address transfers from the charter sector to the commercial sector.

Suboption 3 will, in principle, restrict the total flow of transfers to the commercial sector, and reduce the price received by charter vessel quota holders. This is because **any** restriction on trades reduces both the market clearing price and the quantity traded. In this case, quota would still flow to the sector and market class willing to pay the highest prices, which are vessel classes B in unblocked form. One point that has not been addressed by these options is the fact that quota will also gravitate out of the charter sector (if it is to gravitate at all) to the geographic sector willing and able to pay the highest prices. Hence if policy makers are bent on reducing the flow of quota once transferred to the commercial sector, attention ought to be paid to the spatial price difference, which are every bit as important as determinants of transfers as the block restrictions and vessel size class restrictions.

4.2.5.5 Option 5: Minimum size of transfer is range of 20-75 fish

A minimum transfer rule might be enacted in order to save on administrative and transactions costs. We have not seen a discussion of the administrative paper-chase system to be set up for the charter sector and hence it is not clear whether requiring minimum transfers would save costs. There is somewhat of a conflict between costs that need to be incurred to obtain the different kinds of gains from trade in quota. From the perspective of tracking long-term permanent transfers, administrative costs would certainly be lower if transfers were made infrequently and in large blocks. And it is likely that these are the kinds of changes that would typically characterize permanent transfers. On the other hand, the gains associated with allowing quota holders to transfer temporary short term quota amounts to meet short term production needs obviously would be higher if the units were highly indivisible. It is easy to see, for example, charter quota holders needing to transfer 5-10 fish to cover the last few days of a season. Again, the general rule holds here: any restrictions

that block free trade in quota (whether on a short- or long-term basis) reduce the potential values that the quota system makes possible.

4.2.6 Issue 6 - Requirements to receive halibut QS and IFQ by transfer:

The previous section provided a substantial amount of information on the economic impacts of allowing quota and IFQ transfers. This section defines requirements people must meet in the charter and commercial sector to be eligible to receive those transfers.

Option 1. For the charter sector, must be either
- a) a initial charter issuee or
- b) qualified as defined by State of Alaska requirements for registered guides or businesses*

Suboption: and hold a USCG license.

*this would require a change in the commercial regulations to allow transfer of commercial QS/IFQ to charter operator

Option 2. For the commercial sector, must have a commercial transfer eligibility certificate.

The decision point in this section for the charter sector is whether to require persons wishing to purchase charter QS or IFQ to hold a USCG license in addition to the other legal requirements of being a charterboat operator. There is not an option included that allows everyone to purchase QS or IFQ. The only options under consideration limit the pool of qualified purchasers to those already involved in this fishery and those qualified as guide, or that meet all other legal obligations in the State of Alaska.

In the charter sector, people that are initially issued charter quota or meet the State of Alaska requirements for registered guides would be allowed to purchase quota for use in the charter fishery. These requirements prohibit the purchase of charter quota by those individuals or business that could not fish the IFQ themselves or through their business. The intent of these requirements is to limit the pool of potential quota buyers to those involved in the charter fishery, or those persons that have completed the requirements to register as a guide in Alaska, and/or those persons that fulfill all the legal obligations to operate in the charter sector. These regulations would prevent persons outside the fishery from making speculative purchases of QS.

Limiting the number of people that are allowed to purchase quota may decrease the QS value, if those persons excluded from purchasing QS place the highest value on it. However, limiting the people that are allowed to purchase QS also helps to ensure that the fishery remains in the hands of a particular class of people, determined by the Council to be the appropriate owners of the resource. In making that decision, the Council concluded that the benefits gained from limiting quota ownership outweighed any losses in quota value that may result from allowing anyone to purchase QS.

The Council is also considering a suboption requiring individuals to hold a USCG license in addition to the other requirements before they are allowed to purchase QS or IFQ for the halibut charter fishery. This suboption was included to help ensure that the commercial requirements for holding QS could not be as easily circumvented. However, if the regulations are written such that quota can only be fished in the commercial fishery by individuals eligible[23] to purchase commercial quota, this requirement would likely be unnecessary.

[23]Those who wish to receive QS/IFQ by transfer but did not have QS initially awarded to them must submit a Transfer Eligibility Certificate application for approval. Only those who have 150 or more days of experience working as part of a harvesting crew in any U.S. commercial fishery are eligible to receive a Transfer Eligibility Certificate (**TEC**). Work in support of harvesting but not directly related to it is not considered harvesting crew work.

Should the Council wish to select the suboption to ensue that only those individuals that are operating charter operations legally can purchase QS, language would need to be included that would indicate how corporations would be treated. Corporations can not hold USCG licenses, and therefore would not be eligible to purchase charter QS or IFQ as the suboption is stated. This may not be the Council's intent given that there are valid reasons for corporations, limited liability partnerships, or other such entities to be the legal owners of QS.

The suboption under the commercial sector requirements to obtain quota through transfer is intended to ensure that the rules developed for the commercial sector are not altered as a result of a charter IFQ program. Any use of quota for the harvest of commercial halibut must follow the rules of the commercial program. Therefore, quota purchased or leased from the charter sector would be treated as commercial quota. This would prevent any "gaming" to circumvent the commercial IFQ regulations. Other measures in this program would need to be constructed so they did not contradict this suboption. The block provisions and leasing options are two examples.

Option 1 is the only option being considered by the Council for the charter sector. There is no expectation that charter QS will be bought by anyone not involved in a charter operation (i.e. absentee owner). The analysis correctly identifies the effects of a CG license requirement for QS/IFQ transfer on corporations and limited liability partnerships. They cannot hold a CG license and therefore would not be able to hold QS. From a practical standpoint, there are at least a few ways to ensure those seeking to buy QS or IFQ are owner/operators of charter vessels and hold a CG license. The easiest may be for the State of Alaska to require all applicants for the annual Sport Fishing Services Business license also apply for/hold the annual Sport Fishing Guide license. The application for both licenses is on currently on the same form. If ADF&G required proof of a CG license to accompany the application for Sport Fishing Guide, then anyone petitioning NMFS to transfer QS would simply have to provide a current state guide and business registration prior to transfer.

4.2.7 Issue 7 - Halibut quota use caps for charter operators

The Council is considering two options for implementing use caps. Option 1 is to implement no caps. Selecting this option would mean that members of the charter fleet could purchase an unlimited amount of quota. The second option would set a use cap between ¼ and 1% of combined QS for each area, with potentially a different cap for each area under one suboption. A second suboption would set a use cap of between ¼ and 1% of combined QS for both areas (combined).

The commercial halibut IFQ regulations place definite limits on the number of QS units that any one person may hold (QS Use Caps). The cap is placed on QS units rather than IFQs (pounds of halibut), because IFQ pounds fluctuate with the CEY while the total number of QS units remains static.. No change in Council intent would occur with the recommended change. The regulations would specify the use cap in equivalent QS units, should the Council adopt Option 2.

Option 1. No caps - free transferability

Option 1 proposes to have no ownership caps and allow unconstrained transferability. Fundamental limitations to acquisition of QS by charter operators is the number of anglers harvesting halibut from their vessels and the ability of the firm to afford the QS based on the profitability of the business and the cost of the QS. Note, however, that charter operators also would be allowed to use those QS commercially if they meet the required

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For example, experience as an engineer, cook, or preparing a vessel for a fishing trip does not satisfy the requirement.

criteria (150 days fishing in any commercial US fishery via a transfer eligibility certificate application). Charter operations qualify as "commercial."

Option 2. Caps:

a) use cap for charter QS owners only of ¼, ½, and 1% of combined QS units in Area 2C and ¼, ½, and 1% of combined QS units in Area 3A (for all entities, individually and collectively) and grandfather initial issues at their initial allocation

b) use cap for charter QS owners only of ¼, ½, and 1% of combined QS units for combined Areas 2C and 3A (for all entities, individually and collectively) and grandfather initial issues at their initial allocation

Wilen and Brown (2001) provide the following discussion of caps.

> Ownership caps have been implemented in virtually all limited entry and quota systems worldwide. Limits on the fraction of quota that ought to be held by one person or entity are driven by both ideas of "fairness" and by fears of the consequences of unfettered trade. Many are skeptical that natural resources ought to be "owned" in the first place. To the extent that skeptics can be convinced to buy into the idea at all, they often also insist on the proviso that initial (and subsequent) distribution be "fair." This translates into design features that equalize initial distributions and restrictions on reallocation, including ownership caps. The fear that motivates the implementation of ownership caps is generally the fear that "big business" interests will end up owning rights. Opponents of quota plans often cite fears that fisheries will end up "controlled" by large multinational conglomerates. The often unstated assumptions behind these fears are that large holders might not act with the interests of local communities in mind, or that they might monopolize the market for the quota-managed fishery, or that they might, by virtue of mere size, influence the management toward higher exploitation rates. Whatever the clarity of the vision about these outcomes or the likelihood that the scenarios might materialize, fears of agglomeration have driven the design of most programs, and as a consequence, most programs have ownership caps.
>
> What are the advantages of caps of different sizes? If one is concerned about fairness issues such as equalizing the allocation and distribution of quota holding, then caps are one more restriction on trades that may or may not constrain actual behavior. Whether caps are needed or not depends upon the fundamental incentives to agglomerate in the first place. Agglomeration of quota in the hands of one entity has the potential to confer certain economic advantages. One example already mentioned is the possibility that charter quota held by tour companies might be used more effectively by bundling charter trips with other services provided by the company. Hence there might be economies of scope, which are savings in administrative and other marketing costs associated with a single entity providing multiple services. There might also be economies of scale associated with holding large amounts of quota, or savings in production inputs associated with large-scale use of quota. It is more difficult to think of how these might materialize since successful charter operations are likely to be dependent upon local knowledge and other specialized inputs associated with a skipper or skipper/owner.
>
> There are thus two questions that bear on the issue of whether there might be a tendency for quota to agglomerate and hence whether ownership caps would even be necessary. One is, what are the economic gains associated with holding larger rather than smaller units of quota held? The second is, at what point are these gains counteracted by certain

diseconomies associated with trying to manage large rather than small holdings? These are, again, largely empirical issues and they cannot really be addressed without knowing something about how the charter sector will ultimately transform itself under quotas. These same issues have repeatedly been raised in the farming sector as analysts and policymakers have watched trends in the consolidation of farm holdings. Over the past 50 years there have actually been movements toward consolidation of farmland in corporate hands and movements back to individual owners of smaller holdings. As it turns out, the same opposing forces are at work in the agglomeration of farm assets. There are probably some economies of scale and scope to holding large amounts of farmland under one ownership umbrella. For example, access to capital and to markets might be easier with larger scale. Fixed costs of administration might also fall to a point with size. On the other hand, in an era where specialty marketing is growing, squeezing the most profit out of land may require the detailed and specialized knowledge that an owner has of his own assets. In this case, large scale would be a competitive disadvantage, and we might see trend toward disinvestment in large corporate entities.

We would anticipate similar push and pull in the charter sector. And it also might be the case that different markets in different regions might need different scales to generate the most value from the resource. But without further understanding of the kinds of changes in services and production likely to emerge with quotas, it is difficult to say whether caps will either be binding (necessary) or not. It is conceivable that the largest ownership blocks under current circumstances might actually be too large for the future charter industry under quotas. In this case, ownership caps based on current holdings might never come into play. It is also conceivable that current holdings might be too small for some markets and regions to operate most efficiently. In this case, imposing ownership caps that are binding would have efficiency costs. It would thus be a political issue of whether the economic losses associated with any binding ownership caps are sufficiently compensated by equity or other concerns over agglomeration.

In area 2C, the use cap is 599,799 units of the total 2C QS pool. In combined areas 2C, 3A, and 3B, the current commercial use cap is 1,502,823 units of the total QS units.

As described above, "use" caps are implemented to ensure that no individual gains control of an "excessive" amount of the fishery resource. Excessive consolidation was a concern when the Council developed the commercial IFQ program for halibut. The Council established limits on the amount of commercial QS that may be controlled (used) by one person. During the first two years of the commercial halibut IFQ program, use caps were expressed as a percentage of the total (commercial) QS pool. At that time, the caps were 1% for Area 2C and 0.5% for Areas 2C, 3A, and 3B combined. In 1996, the Council approved a regulatory amendment that raised the caps in Area 4 (from 1/2 to 1 1/2%) and changed the percentages to fixed amounts of QS units for all areas (with 1996 as the base year for conversions). Currently, persons or individuals may own, hold, or otherwise control, individually or collectively, no more than the number of QS units listed in the box above for Areas 2C, 3A, or 3B.

A person is defined as all individuals, corporations, partnerships or other entities. The use level of an individual is calculated by adding QS owned personally as well as by any partnership or corporation of which the person is a part. The use cap does not apply to initial allocations. A person was allowed to receive above the cap level on the basis of his catch history. Anyone in this situation will be entitled to retain the excess amount.

They will not, however, be able to purchase or lease any additional quota without first divesting themselves of any quota in excess of the limit.

For the 2000 fishing season, the use caps equated to 84,600 net lb of commercial halibut in Area 2C (7.0899 QS units per IFQ pound). The calculation to determine pounds for the cap for Areas 2C, 3A, and 3B combined is more complicated because the QS:IFQ ratio is different for each area. The range would be between 150,000 lb if all QS were held in Area 3A (10.0994 QS units per IFQ pound) and 419,000 lb if all QS were held in Area 3B (3.5867 QS units per IFQ pound). It is likely however that an individual QS holder would hold QS in multiple areas, and so would be capped at some level in between these individual area caps. Consolidation of approximately 30% occurred in both areas after 5 years of the commercial halibut IFQ program; $^{2}/_{3}$ of that consolidation (20%) occurred in the first year of the program (see Section 3).

The range ¼ to 1% for analysis would limit the number of charter QS holders to between 400 (at ¼%) and 100 (at 1%) for each area. The actual number of QS units will not be available until the charter allocation is adopted (under Issue 1). Note that the Council's current language for Option 2 replaced language that would have set a combined use cap for both the commercial and charter sectors in Areas 2C and 3A. The Council modified the option during initial review because it was decided that the Council nor committee intended to "change" the use cap for the commercial sector. The option was modified to reflect Council and committee intent to place a limit on the use of charter QS, should the Council adopt the IFQ alternative.

In the 1999 halibut charter fishery, 397 businesses and 581 vessels were active in Area 2C and 422 businesses and 504 vessels were active in Area 3A. For comparison, at the end of the 1999 commercial fishery, there were 1,623 commercial QS holders in Area 2C and 2,156 QS holders in Area 3A.

$$\text{combined QS pool} = \frac{\text{commercial QS units}}{(1-0.1305)}$$

Staff assumes that the Council will also want NMFS to implement the use cap in QS units for the same reasons that justified the Council's adoption of a regulatory amendment to the halibut IFQ program in 1996 that changed the commercial use cap from pounds to units (the quotas fluctuate, resulting in annual fluctuations of being in/out of compliance) based on the year of approval or implementation (2001 or 2003). The known number of commercial QS units total 59,555,379 in Area 2C and 184,920,851 in Area 3A. The number of QS units that will be initially allocated under the proposed action depends only on the allocation split between commercial and charter sectors. For instance, if the charter sector is allocated 13.05% in Area 2C, then the combined QS pool will total 68,493,823 units. A cap of ¼% would set a limit of 171,234 units and a cap of 1% would set a cap of 684,938 units.

Given the number of commercial and charter operators, it seems unlikely that these caps would be necessary to prevent large reductions in the number of QS holders. However, the charter industry has expressed its concern that large scale charter operations may enter the fishery in the future. These large scale operations could be a tour boats or cruise ships that have ports of call in 2C or 3A. These companies have access to large amounts of capital that could be used the finance the purchase of QS. They would then be able to hire captains to fish their quota. This would create more competition for quota and clients for the small scale charter operators in the area. It could also increase the number of operations that have absentee owners and use hired skippers to run the vessel.

A use cap would help to address the "fairness" issue between small and large scale QS holders, and ensure that a single entity will not gain control of an excessive share of the fishery as required under National Standard 4 when fishing privileges are assigned. Use caps may also help to ensure that small operations are able to enter the fishery since a few large companies would not able to control large portions amounts of

quota. However, if quota shares are tradeable between the commercial and charter sector it is less likely that a larger company would be able to "buy-up" the quota that is available to charter operator. Instead they may cause the price of quota to increase or use their infrastructure to direct potential clients to their charter operation, this is especially true in Area 2C where a large percentage of tourists enter the State on cruise ships.

4.2.8 Issue 8 - Miscellaneous provisions

Any or all of the following three options may be selected.

Option 1. Maximum line limit of 12 in Area 3A (remains at 6 lines for Area 2C), grandfather initial issuees

Option 1 would set the maximum line limit in Area 3A at 12 per vessel with a grandfather provision for any vessel that had been carrying more than 12 clients per trip prior to implementation of this regulation. It is a management action that was originally included in the GHL analysis *as a potential means to control harvest*. Harvest controls are not explicitly needed under an IFQ program. **If line limits do not address the Council's problem statement (i.e., allocations between charter and commercial sectors), then the Council may wish to withdraw it from the analysis or revise its problem statement.**

It is not clear what the intent of such a measure would be under an IFQ program. If the purpose of line limitations is socio-economic and/or allocative, then the Council should provide such direction to staff so the analysis could address the distributive result of establishing line limits. Line limits appear to address allocation issues *within* the charter sector. Two other ways to ensure against all the QS/IFQ ending up on a very few vessels, other than use caps which are addressed under Issue 7:

1. Issue QS/IFQ in vessel length categories (i.e., "D" and "C" as in the commercial program);

2. Designate some QS as usable only on a "6-pack" vessel (i.e., one on which the skipper may not carry more than 6 people for hire) and to designate some for use only on vessels that may carry more than six clients (i.e.,"head boats"). Presumably, the designation would be made when the QS was initially issued and it would be based on the eligible applicants' historic operations. If the QS were so designated, RAM Division staff would need to convert it back to the 'commercial' categories when it transferred in to that sector. USCG staff notes that operators can not carry more than six passengers on a Coast Guard "six-pack" license. They must upgrade their license before they can increase the number of passengers they carry (and the size of boat) (G. Busch, pers. commun.).

If the intent is conservation then such a recommendation should be forwarded to the IPHC, since that responsibility for Pacific halibut is invested with that management agency. If this option remains in the analysis, then additional line limits should be added to provide a sufficient range of choice. Once the Council's intent is more clear, then this option could be analyzed in contrast with other options targeting the same objective. As a general comment, additional restrictions placed on the permit (presumably, the line limit would be set out as a condition of the operator's annual charter IFQ permit) makes enforcement more challenging.

The following discussion is modified from the GHL analysis (NPFMC 2000). The Area 2C 6-line limit adopted by the Board of Fisheries in 1983 would remain unchanged. This regulation originally was proposed to the BOF by Southeast residents to deter the movement of large capacity charter vessels from Pacific Northwest states to Southeast Alaska. The proposal was also supported by the existing charter fleet in Southeast, commercial user groups, and local private anglers. Existing charter businesses supported the six line regulation

because they all had small vessels that carried less than six clients at a time and they did not want the added competition from the larger boats that could carry more clients and charge a lesser fee per client. Commercial groups supported the regulation because they did not want to see large increases in the sport charter industry.

In 1997, the BOF adopted a companion regulation that stated the maximum number of fishing lines that may be fished from a vessel that is engaged in charter activities is equal to the number of paying clients on board the vessel. This restriction was placed on charter vessels fishing for all saltwater species in Southeast Alaska.

In this area, the majority of halibut charters are licensed to carry six passengers, but some vessels can carry 16-20 or more passengers. A comprehensive list of vessels and their fishing capacity is not currently available. What follows is an anecdotal report of the charter vessels with higher client capacity. In Seward, two operators have several boats capable of carrying 16-26 passengers. Also in Seward, the Air Force has three 43-ft boats that can carry 18-20 passengers for a variety of bottomfish and halibut. The Army has a 54-ft boat that can carry 20-22 passengers and a 40-ft boat that can carry 14 passengers that travel outside Resurrection Bay where they can target halibut. In Kodiak, most charter vessels are 6-pack boats, perhaps six are 30 ft boats, and eight are 40-50 ft and can carry up to 18 passengers. The Valdez fleet consists mostly of 6-pack or smaller boats; six boats can take 8-12 passengers.

Because of the characteristics of the Area 3A halibut charter fleet, the Council may wish to recognize differences in the existing fleet and consider options under the proposed line limit action:

- A maximum number of 12 lines per vessel could be community-based and designed within a LAMP to recognize past and present participation of head boat and military charter vessels at specific ports.

- A maximum number of 12 lines could be set and current charter vessels could be grandfathered at the maximum number of rods fished, or an average number of rods fished, or some other formula, as verified in the ADF&G databases.

Potential changes to restrictions on line limits for Areas 2C and 3A were examined in the 2000 GHL analysis using 1998 logbook data for all bottomfishing. A known data issue is that many skippers did not understand that they were to record the maximum number of rods fished at any one time, so the estimates of the number of rods fished are in some cases very high (up to 60 rods per boat). Some charter vessels in Seward (particularly military charters), however, may take upwards of 20 clients per trip, and one trip reporting 27 rods fished on a trip was verified by ADF&G port samplers. It became obvious that this information was not adequate to estimate the effectiveness of line limits as a tool to reduce halibut harvests.

A second attempt at determining the effectiveness of line limits as a method to control harvest indicates there is not a direct relationship between line limits and harvest reductions. A number of assumptions would be required to relate line limitations to vessel operator behavior. Some vessels might take more trips during a day, there could be a shift to more small vessels, or it might not be economical for some vessels to fish at all.

Options of line limits of 6-26 lines in Area 3A were approved for the GHL analysis. Table 4.7 lists frequency of vessel trips by the number of rods fished (assumed to be equal to the number of anglers) for Area 3A. A total of 15,903 trips fished 12 lines or fewer in 1998. These trips would likely be grandfathered in and would not be impacted. The provision would only serve to prohibit new vessels from entering the fishery that carry more than 12 clients per trip. If there were no grandfather provision included in the analysis then vessels that were designed to carry more than 12 clients may be disenfranchised through this regulation, however the only option under consideration includes a grandfather provision.

A total of 755 trips would have been affected if a 12-line limit had been in place (with no grandfather provision). Other line limits show a declining number of trips affected as the line-limit increases. The GHL analysis concluded that while line limits may address local competition issues between charter operators *it may not act as a control for removals*. Therefore, it was not deemed effective to control harvest and may have limited application within an IFQ program to address the stated problem of minimizing allocation issues between charter and commercial sectors.

If the Council selects this option in its preferred alternative, the staff requests that the Council provide its intent on the following issues regarding the grandfather provision. A definition of what triggers the grandfather clause for a vessel should also be included in any Council decision. Is it based on whether a vessel ever carried more than 12 clients? For example a vessel that typically carried less than 12 people, but carried more than 12 at times would be grandfathered to carry more clients than 12 if it is based on whether they ever carried more than 12. Finally what is grandfathered, the vessel or the owner of the vessel, and are the grandfather rights of a vessel transferrable? Assigning grandfather rights to a vessel is more akin to a limited entry permit. If the rights are vessel based are they transferable to another vessel? If the grandfather rights are assigned to a person, is there a maximum number of clients they can carry, or are they allowed to bring larger vessels into the fishery? If they are assigned to a person what happens when they leave the fishery?

Does this allow all charter operators to carry 12 clients per trip. What are the limitations on carrying more than 6 clients per trip. Are there likely cost reductions per client when carrying 12 versus 6. If this is a good

Table 4.7 Frequency of vessel trips by number of rods fished in 3A for 1998									
				number of trips					
# of lines	Yakutat	Prince William Sound	West Cook Inlet	Cook Inlet W of Gore Pt.	North Gulf E of Gore Pt	Kodiak	TOTAL	Running Total	# trips eliminated under line limits
1	5	13	0	49	6	69	142	142	16,516
2	59	181	0	628	68	322	1,258	1,400	15,258
3	141	208	0	1,039	111	298	1,797	3,197	13,461
4	198	416	0	2,406	289	486	3,795	6,992	9,666
5	106	324	0	1,781	288	187	2,686	9,678	6,980
6	129	639	0	3,343	536	176	4,823	14,501	2,157
7	1	47	0	203	23	27	301	14,802	1,856
8	0	65	0	172	34	30	301	15,103	1,555
9	1	56	0	87	15	8	167	15,270	1,388
10	0	85	0	137	27	2	251	15,521	1,137
11	0	12	0	98	44	1	155	15,676	982
12	0	22	0	139	64	2	227	15,903	755
13	0	5	0	59	45	1	110	16,013	645
14	0	10	0	62	52	3	127	16,140	518
15	0	5	0	82	50	0	137	16,277	381
16	0	15	0	91	58	0	164	16,441	217
17	0	5	0	28	17	0	50	16,491	167
18	0	3	0	21	14	0	38	16,529	129
19	0	0	0	14	14	0	28	16,557	101
20	0	1	0	13	33	3	50	16,607	51
21	0	0	0	2	6	0	8	16,615	43
22	0	0	0	5	1	0	6	16,621	37
23	0	0	0	4	0	0	4	16,625	33
24	0	0	0	6	0	0	6	16,631	27
25	0	0	0	4	0	0	4	16,635	23
26	0	0	0	0	0	0	0	16,635	23
27-60	1	2	0	18	2	0	23	16,658	0
TOTAL	**641**	**2,114**	**0**	**10,491**	**1,797**	**1,615**	**16,658**		

thing why have operators not done more of this in the past? Are there regulations in place that prohibit that practice? Charter operators usually carry on about 4 clients per trip, is it feasible to upgrade to a boat that carries 12 clients? What would this do to the price per trip, would they need another crew member to deal with the extra.

Option 2. 10% underage provision of total IFQs

Option 2 proposes to incorporate an underage (or rollover) provision for the charter sector similar to that in the commercial halibut IFQ program. The purpose of the underage policy in the commercial program is to provide an incentive for that permit holder to refrain from a full harvest so that the permit amount (and the TAC) is not regularly exceeded (also, depending on market conditions, some folks strategically opt to take their "10%" in next year's IFQ permit, trying to obtain a higher price/pound).

The regulations stipulate that underages of up to 10 percent of a person's total annual (commercial) IFQ account for a current fishing year will be added to that person's annual IFQ account in the year following determination of the underage. This underage adjustment to the annual (commercial) IFQ allocation will be specific to IFQ species, IFQ regulatory area, and vessel category for which an IFQ is calculated, and will apply to any person to whom the affected IFQ is allocated in the year following determination of an underage. The commercial regulations define *Underages* (§679.40(d)):

> *Underages of up to 10 percent of a person's total annual IFQ account for a current fishing year will be added to that person's annual IFQ account in the year following determination of the underage. This underage adjustment to the annual IFQ allocation will be specific to IFQ species, IFQ regulatory area, and vessel category for which an IFQ is calculated, and will apply to any person to whom the affected IFQ is allocated in the year following determination of an underage.*

It is conceivable that there may be some advantage to having such a policy (if, for instance, a permit holder's clients failed to catch fish in a given year), but that advantage may not be worth the associated administrative and enforcement burden. Also, "unused" IFQ (fish) remaining at the end of the charter season could be transferred to a commercial operator or to himself as a commercial operator, so no real underage would need to exist and the charter QS holder could receive some compensation for unused IFQs.

Also, how underages would be applied depends on whether the charter IFQ harvest is managed in pounds or numbers of fish. There is no data to analyze whether 10% is an appropriate underage adjustment for this fishery.

No data is available for the charter sector because this fishery is not managed under a quota system. Information on underages in the commercial fishery are discussed for comparison. Prior to implementation of the IFQ program, "overages," or catches that exceeded the TAC, were common. However, harvests in the IFQ fishery for 1995-98 were below the IFQ TAC in all areas. The percentage of the TAC that was harvested in the IFQ fishery in Areas 2C and 3A has been less than the TAC since IFQs were implemented. The underharvest has declined (i.e., percent of TAC has increased) between 1995 and 1998.

Option 3. 10% overage provision of total IFQs remaining on last trip to be deducted from the following year's IFQs

Option 3 proposes to incorporate a ten-percent adjustment policy (overage) for the charter sector similar to that in the commercial halibut IFQ program. The regulations stipulate that a person's annual (commercial) IFQ

account will be adjusted in the year following a determination that the person harvested or landed IFQ species in an amount greater than the amount available in the person's annual (commercial) IFQ account and if the amount greater than the amount available does not exceed 10 percent of the amount still remaining in the person's annual (commercial) IFQ account at the time of landing. The adjustment would be a deduction of the amount of IFQ species harvested or landed that was determined to exceed the amount available in the person's annual (commercial) IFQ account and will apply to any person to whom the affected IFQ is allocated in the year following the determination.

Applying this equation to a charter boat would mean that if a charter operator caught 240 out of their 250 halibut quota for the year near the end of the season and were getting ready to go out for one more trip with 6 persons, they could legally bring home 11 halibut (10% over remaining balance). The operator would be in violation if they brought home 12 halibut, even though they didn't exceed 2 halibut per person. Further, USCG staff notes it is much easier to base the overage on number of fish rather than weight. There should be a relatively small number of overages that exceed the average weight, so unaccounted for removals should not be an issue.

The commercial regulations define *Ten-percent adjustment policy* (§679.40(d)):

> *A person's annual IFQ account will be adjusted in the year following a determination that the person harvested or landed IFQ species in an amount greater than the amount available in the person's annual IFQ account and if the amount greater than the amount available does not exceed 10 percent of the amount available in the person's annual IFQ account at the time of landing. The adjustment would be a deduction of the amount of IFQ species harvested or landed that was determined to exceed the amount available in the person's annual IFQ account and will apply to any person to whom the affected IFQ is allocated in the year following the determination.*

In the charter fishery, there may be limited need for an overage policy (especially if the permit is enumerated in numbers of fish), as the exact amount of fish can be easily determined and the permit holder will know exactly where s/he stands with respect to the allowable catch. Allowing overages and underages in the halibut charter fishery could provide charter operators more flexibility in managing their business, and should result in few negative impacts on the commercial fleet. Overages will allow an operator to meet the needs of end of the year "walk in" clients without procuring quota through transfers. This may be an especially important provision for charter operators that have a year that resulted in larger harvests than were expected, and forecasts that the next year will result in few clients and likely lower harvests. The overage and underage provisions in this case would serve as a mechanism to reduce the need for charter operators to lease quota, since they would be allowed to "borrow" a small amount from their allocation the next year. The quota that was used above their allocation would be deducted from the next year's allotment, so a charter would not be allowed to continually exceed their quota. Should a charter operator continue to need additional quota, they would be required to obtain that quota through a transfer or risk being fined or having their quota revoked for continually exceeding their allocation. The penalties that would be enforced will likely be substantial enough to ensure that the charter operators do not continually exceed their allocation. Both the commercial and charter halibut committees agreed that this feature would not needed if the Council selects Issue 9, Option 2 (numbers of fish) in its preferred alternative because counting fish is more precise than estimating poundage.

Allowing charter operators to exceed their quota by ten percent in a year would result in the charter fleet increasing their harvesting by, a maximum of, about 1% of the overall quota[24] in 3A and 2C. These overages will have little impact on the quota levels that would be set the following year, and the charter sectors allocation would be reduced that year to account for any overage taken the previous year. The reductions in charter allocation would result in equal increases to the commercial allocation

The typical maximum harvest of 12 fish per boat trip would affect the magnitude of an overage, not its frequency. A charter operator will attempt to book a number of clients based on the size of his IFQ, the number of fish it represents, and his clients' anticipated success rate (e.g., 1.6 fish per client). If his clients are more successful than average, he may reach a point where his IFQ has been taken but he still has clients booked. In that case he will either transfer additional IFQ, book them with someone else, or incur an overage in order to satisfy his clients. Without an overage allowance, the latter practice would be incur a violation.

Further, administration and enforcement of an overage policy is complicated and expensive. In the commercial fishery, confiscation of landings are used as the enforcement vehicle, but this may not fit well in a charter venue. If confiscation were used, would it be levied against the operator or the client? The question of who will be penalized is important. Individual anglers are already regulated under a 2-fish daily bag limit and 2-day possession limit. The IFQ is issued to the charter operator, not to the client. It would stipulate the number of sport-caught fish that can be taken on his vessel. USCG and NMFS Enforcement concurs that it seems logical that the angler should be allowed to retain any fish taken or possessed within the daily bag and possession limit, and that any IFQ overage penalties should be incurred by the charter operator.

If accounts are managed in pounds, the trigger for confiscation versus administrative adjustment could be the same as for commercial use QS (i.e., in pounds depending on what remained after the last landing). If confiscations are not tenable, then different penalties need to be devised for charter operations.

The State of Alaska lacks any regulations regarding IFQs and likely does not have authority to make any. The State also currently lacks the authority to revoke a charter operator's registration or vessel license, and current penalties for not recording logbook data are trivial ($200). Further, it is unlikely that State enforcement officers would even know if a charter operator were in an overage situation in the first place.

Option 4. A one-year delay between initial issuance of QS and fishing IFQs.

It is possible, given the turnover in the charter fleet and the delay in the issuance of QS, that a significant amount of QS could be awarded to inactive charter operators. Such holdings by inactive operators could negatively impact access by recreational anglers who use charters to access the halibut resource. This is because of lost days of time to identify holdings and transfer those holdings to active operators. To mitigate this impact, the Council added this option to delay by one year the period between initial issuance of QS and when that QS would be fished as an IFQ. This would allow inactive QS to be identified and transferred. It would also allow operators to better gauge their needs and to purchase/sell QS based on these needs prior to actual fishing.

4.2.9 Issue 9 - IFQ units issued based on QS in the halibut charter program

If an IFQ program for the charter sector is implemented, all QS would be issued in **UNITS**, not pounds or numbers of fish. Under Issue 9, the Council is considering issuing halibut IFQs as either pounds of halibut or

[24]Ten percent of the 3A charter quota (14.11%) equates to 1.4%, and ten percent of the 2C charter quota (13.05%) equates to 1.3%.

the number of halibut that can be landed through the operations of charter in a calendar year. The number of QS units initially issued would be converted either to pounds using the standard formula (Option 1) or to pounds and then to numbers of fish using average halibut weights from the charter sector (Option 2).

Option 1. Pounds

Option 1 reflects the current administration of the commercial halibut IFQ program. The current unit of measurement in the commercial halibut fishery is pounds net weight (headed and gutted). This method makes sense for that fishery because that is the unit of measure that is used to manage the fishery and the unit that is sold in the market place.

An overarching feature of the combined program is that QS is indistinguishable between the charter and commercial sectors. QS would be issued in a common "unit" (originally based on pounds landed). Therefore, there are not "commercial QS" or "charter QS," only "QS." The degree to which restrictions are placed on IFQ transfers between the two sectors is a critical decision before the Council, that is, are there "commercial IFQs" and "charter IFQs?" Under a system that issues IFQs in pounds for both sectors, there would not need to be two types of IFQs, although other features of the program may distinguish IFQs used in the charter sector from those used in the commercial sector (e.g., vessel class sizes). Transferability of IFQs between the sectors would be simpler if both were managed in pounds. If the IFQs are managed under one NMFS RAM account, then also managing all IFQs in the same unit may be preferable because it would save one administrative step.

The above issue may come into play where a person is eligible to fish halibut in both the commercial and charter fisheries. Under a common IFQ program, the person may fish his/her halibut IFQs in either sector; the use of those IFQs (e.g., on a certain size vessel using fixed gear or on a different size vessel with paying clients using rod and reel gear) would determine legal operations. Alternatively, if there are separate commercial (pounds) and charter (numbers) accounts, a person who is eligible to fish halibut in both the commercial and charter fisheries would have to submit a transfer request form to RAM to transfer those IFQs to him/herself. This transfer may take up to 3-5 days, depending on time of transfer, that is, if numerous people submit paperwork at the same time (e.g., week preceding Labor Day weekend), delays will be extended. Granted, this scenario would be expected to occur for a nominal number of persons eligible to fish in both sectors, but the number of such persons may grow depending on the ultimate configuration of the program.

Also fundamental to this discussion is the question of whether charter IFQ fish can bought or sold. Agency staff recommends that the Council should explicitly address whether charter operators can fish their charter IFQ commercially (i.e., sell the fish). If they are, then it can be argued that the fishing that takes place on this vessel is not sport fishing, and that a crewman's license is required by the clients. If not, then there has to be a clear distinction that the IFQ cannot be used for commercial fishing unless it is transferred through the RAM Division for that purpose. If a charter operator also possesses commercial IFQ, s/he could not fish it on the same trip as charter IFQ under current IPHC and State of Alaska regulations. It should also be noted that if charter operators are allowed to harvest and sell some of their allocation commercially, then their commercial landings should be deducted from their allocation based on the pounds of halibut landed and not numbers of fish (should the Council elect to issue charter IFQ in numbers of fish).

Lastly, if the IFQ is specified in pounds there will be an incentive for charter operators to attempt to fill bag limits with the smallest possible fish, in order to sell more trips and maximize profits. This could have conservation implications, as well as implications for angler satisfaction, i.e., a propensity for charter operators to park on 'chicken patches'.

At a more operational level, issuing IFQs in a common unit would minimize the administrative burden of keeping two sets of books, so to speak, one in pounds for the commercial sector and one in numbers for the charter sector. As described above, the Council must weigh the advantages of designing a combined commercial and charter program where IFQs seamlessly move between the two fishing sectors versus the disadvantages of not accommodating the uniqueness of the two individual fisheries (see below).

Option 2. Numbers of fish (based on average weight determined by ADF&G)

Option 2 proposes to issue and manage the IFQ accounts in the charter sector in numbers of fish. Current management measures state that charter clients are allowed to retain two halibut. In addition, logbooks which are the current method used to report catch and participation use the number of fish as the unit of measure.

In contrast to many commercial fisheries, nearly all recreational fisheries are managed based on numbers, rather than weight, of fish landed. Size limits may be employed in combination with bag and possession limits to limit the harvest of large or small fish (depending on the management need), however they are rarely used singularly. Limits on pounds of fish landed are rarely used as a regulatory mechanism in recreational fisheries, because of the higher number of vessel landings and dispersed nature of the fishery. Because sport-caught fish are not bought or sold, it is impractical and expensive to have enforceable weigh stations at all sites of sport landings.

Current IPHC sport fishing regulations stipulate: No person shall fillet, mutilate, or otherwise disfigure a halibut in any manner that prevents the determination of minimum size or the number of fish caught, possessed, or landed. Many halibut are cleaned at sea and carcasses are disposed of before returning to port. This practice has been interpreted by NMFS enforcement as legal as long as the fish are filleted in a manner that allows the number to be determined (there is no size limit in the sport fishery in Alaska). Therefore, adoption of an IFQ program for the charter sector in numbers rather than pounds would have the advantage of linking the limit to the most common management strategy for recreational fisheries, that is bag and possession limits. Changing the unit of measure in the charter fishery from pounds to fish may impact the way the fishery is prosecuted. However, keeping the current unit of measure (number of fish) may also lead to changes in the way the charter fishery operates.

The structure of the halibut fishery when the quota shares were earned was based on a system where the halibut input had no cost. Charter operators were allowed to take as many clients fishing in a year as they could sign-up to take a trip. Once on board the charter vessel, the anglers were constrained by the two fish daily and 4-fish possession limits that are applied to all halibut sport fishermen. The halibut harvested could be of any size. Therefore the pounds of halibut that could be taken by an angler on a single trip could range from 0 to over 300. The level of removals had no real impact on the charter operator's cost structure. Under an IFQ system, the pounds (or number of fish - depending on the system) are a real cost to the charter operator.

Changing the underlying cost structure of the halibut charter fishery may change the attributes of the charter trips that are offered. For example, charter operators could specify the type of trip they offer in the materials they develop to advertise a trip. Some charter operators might state that no halibut over 100 lb could be retained. They may market this approach to conservation minded clients that are interested in protecting the larger female halibut that are the brood stock. Other operators may impose size limits on small fish. They would market trips to the trophy fishermen. These trips may state that only fish larger than X lb may be retained. Trips of this type would greatly reduce the total number of halibut retained by the charter operator. Other charter operators may offer trips where there is no additional charge for the first 50 lb (or some other level) of halibut retained. For each pound of halibut over the specified level, the client would be required to

pay an additional dollar amount that was specified in the contract. It is not known if these types of trips will be offered. They are presented as examples. It will be up to the individual charter operators to determine the type of trip that works best for them and their business. However from an economic perspective, since the halibut would be a cost input under the IFQ program (and the GHL program as well) it makes financial sense for the charter operators to minimize their costs. Reducing the amount of halibut harvested on their boat, if their halibut allocation is a constraint, is a logical way to reduce costs.

Allocating halibut in numbers of fish, rather than pounds, benefits charter operators that harvest larger halibut, on average. Charter operators that harvest smaller halibut, on average in the future, would be disadvantaged under this system. This is because the number of fish are based on a standard conversion rate of lb to fish. Therefore if the average fish over the entire fleet is 20 lb, and an operator catches 40 lb fish on average, he has essentially doubled his allocation. His hope is that other charter operators continue to catch smaller fish and will keep the industry average at close to 20 lb.

Simply stated, if a charter operator's IFQ represents 10,000 lb in a particular year and it is converted to numbers of fish, it clearly represents more fish if the average weight is lower. But if an area-wide average weight is used that is lower than his regional average for the conversion, his IFQs would be reduced.

If fish size depends on the charter operators ability to run to better fishing grounds further from shore, allocating quota in terms of number of fish would tend to benefit operators with larger faster boats. Charter operators that catch smaller fish that the average (perhaps those with smaller - slower boats fishing closer to the harbor) will receive a smaller allocation if it is based on fish rather than pounds. This may lead to charter operators upgrading their boats to essentially increase their allocation in the short run. If everyone follows this strategy, they average halibut size will increase. Reducing the number of fish a charter operator will be allocated based on their QS units held.

Because not every port is covered by the creel survey, an area-wide conversion, calculated annually, and using the ADF&G creel survey estimates of average weight for IPHC Areas 2C and 3A, would likely be recommended. However, there are significant differences between the area-wide average and port averages. However, using an area-wide average conversion from pounds to fish would be equitable if the amount of poundage initially issued to a person is based on the number of fish he/she originally landed. For example, the Area 3A average (e.g., 19.2 lb/fish) was used to convert a Yakutat operator's harvest average of 1,200 fish in 1998 and 1999 to 23,040 lb. Under the hybrid option (see below), the conversion works well.

To manage the charter IFQ program in numbers of fish, RAM Division staff would convert the charter sector's allocation from pounds to numbers of fish prior to issuance of annual IFQs. ADF&G estimates the number of fish caught and landed and average weight of harvested fish by port in Areas 2C and 3A. The conversion between pounds and number of fish would be based on average fish weights collected from port and creel sampling in Area 2C and creel sampling in Area 3A. These sampling methodologies were reviewed by the Scientific and Statistical Committee in December 2000 and found to be "sound and well-implemented."

One cost of specifying charter IFQs in numbers of fish rather than pounds is that dockside monitoring would have to be done at major charter ports on a consistent basis to obtain an average weight of halibut harvested by charter clients. This would be an expensive program to cover all major charter ports in Areas 2C and 3A.

The structure of the existing sampling programs is an important consideration for determining how a conversion might be applied. Using Area 2C and 3A average weights will likely have implications on individual operators. There are differences in average weights between individual operators, and documented differences between ports. The existing sampling programs in Areas 2C and 3A calculate sport harvest

biomass using average weights for each port, but some ports are not sampled at all, and some operators make landings at more than one port. Using area-wide average weights for the conversion to numbers of fish, may allocate fish away from operators with higher average weights or away from ports with higher average weights. Using current estimates, the 1999 Area 3A average weight for charters was 19.2 lb, while the Lower Cook Inlet and Yakutat port averages were 16.5 and 43.3 lb. If the Area 3A average was used, allocations to Homer operators could see a 1% decrease in allocation while allocations to Yakutat operators would be increased by 126%. For these reasons, conversions to numbers may result in unacceptable re-allocations within the charter sector. Similar conversion inequities would likely result from IFQ transfers between the commercial and charter sectors.

Option 2 also may result in a less significant result due to conversions between pounds and numbers of fish. A lack of precision results in moving from fish to pounds as a result of rounding. That is, fractions of fish would not be awarded; however, the maximum rounding error is 0.5 fish. An IFQ of 1,000 lb and a conversion of 18.9 lb/halibut would result in an IFQ of 52.9 halibut. RAM could award 53 fish; if less than half a fish the IFQ is rounded down. RAM may be requested to transfer IFQs incrementally, resulting in fractional amounts of fish being rounded up or down, with potential for rounding issues.

Making the conversions from pounds to fish on a charter IFQ permit would not be administratively difficult. Conversions between pounds and numbers of fish and IFQ account maintenance is simply a mechanical process for RAM. The issues are not insurmountable, but they should be evaluated in the context of adding additional complexity to a proposed program that is already complex.

Keys to an effective data system include:

- Keep it simple. use no more than one annual conversion rate for each (or both) IPHC area(s), which would obviate the need to create, update, and maintain a variety of annual conversion tables based on specific ports or sub-areas.

- Ensure that no systematic bias is introduced by the pounds-to-fish rounding process.

- Charter operators must understand, and accept, that the conversion system may, in some specific instances, appear to cause “inequitable” results.

RAM staff have proposed three ways to administer charter IFQ accounts:

1. Numbers. Charter accounts are maintained and managed in numbers of (whole) fish. At the beginning of each year, TAC distributions in pounds are converted to fish. RAM rounds up or down to whole fish, theoretical excess pounds disappear and additional pounds are added as needed to “make up” whole fish. Reporting is in numbers of fish. Conversion between pounds and numbers of fish is necessary for each transfer between charter and commercial sectors, for calculating the following year's permits, and (depending on how they are calculated) to determine when to confiscate as opposed to making an administrative adjustment for overages. If the rounding method is unbiased, on average the TAC is not exceeded, although a person might be advantaged or disadvantaged in any one conversion event. Conversion factors, once calculated and published, would not be subject to debate.

2. Weight. Charter accounts are maintained in weights, just like commercial accounts. This requires that charter operators report weights. Everyone gets to use the amount of (whole) pounds allocated to him/her. No conversions, no unallocated fractions of fish, no disputes. However, there were 2,807

commercial IFQ landings in Area 3A, while there were 16,643 bottomfish charter trips. The cost to monitor charter landings and weigh fish may be enormous. Many charter ports having no infrastructure for monitoring.

3. A hybrid. Allocations are made and accounts are maintained in pounds, and as a convenience, charter permits display numbers of whole fish. Reporting is in numbers of fish. RAM may also need to display allocated pounds on charter IFQ permits and on landing receipts. Reporting is in numbers of fish. Allocations, transfers, overage/underage, permit calculations are all straightforward, as are conversions to whole fish.

Accounts entirely in numbers of fish (#1) are much simpler to understand and report, but rounding issues are introduced. Accounts maintained in pounds (#2 & #3) are much simpler to maintain, less prone to error, and easier to edit. Method #3 provides the advantages of predictability for charter operators, a simple reporting method and ensures account accuracy; but, it requires charter IFQ permit holders to consider their IFQ accounts in both fish and pounds to track transfers, inseason overages/underages/confiscations and next year's IFQ adjustments. Tracking transfers may not be an issue. If IFQs are transferred from charter to commercial sectors, the commercial buyer would disregard the numbers of fish. If transferred from commercial to charter sectors, the poundage would be converted to numbers of fish using a recent average weight.

No matter which option is selected, an additional issue merits examination:

> Determination of the rules for calculating and "carrying over" permit overages and underages; and, for overages, determination of limits (i.e., at which point does a permit "overage" result in confiscation?).

One option is to base overages and underages on the number of fish rather than poundage. For example, if a charter operators IFQ for a given year represents 5,000 lb or 250 fish, he would be allowed a 25-fish (10%) overage or underage. Since the IFQ represents the number of fish that can be taken on his vessel (rather than the number that can be taken BY HIM), there would be no confiscation of overages as long as the anglers did not violate bag and possession limits. Instead, NMFS would have to specify criminal penalties for overages.

In terms of carrying underages over to the next year, the number of fish underage would be converted to pounds at the current year's working number for average weight, and the following year the carryover could be converted back to numbers of fish using the next year's working number for average weight. If average weight changed, the numbers of fish represented by the carryover would change as well.

Managing the charter IFQ fishery in numbers of fish may be preferable for several reasons.

- One of the main advantages of implementing an IFQ program for charter operators is to enable operators to "customize" the amount of IFQ they hold to match the harvest needs of their individual business. Charter businesses can probably predict fairly closely how many halibut they need to run their operations through the normal fishing season. They will not be able to predict the weight of the fish their clients may harvest. Basing their annual IFQ permits on pounds of fish will introduce a factor of uncertainty into every charter business that will make it more difficult for them to operate within the IFQ program.

- The average weight of halibut changes from year to year based upon year class strength and other biological characteristics of the stock. An IFQ amount based on weight may work just fine for a charter business one year. However, the same IFQ share may only carry the business through a portion of the fishing season in future years if the average size of halibut increases substantially (but the commercial sector is also affected by changes in halibut abundance and average weight).Likewise, a charter operator may forego income with a significant underage if the average weight of halibut were to decrease in a given year.

- One of the main advantages of implementing an IFQ program for charter operators is to enable operators to "customize" the amount of IFQ they hold to match the harvest needs of their individual business. Charter businesses can probably predict fairly closely how many halibut they need to run their operations through the normal fishing season. They will not be able to predict the weight of the fish their clients may harvest. Basing their annual IFQ permits on pounds of fish will introduce a factor of uncertainty into every charter business that will make it more difficult for them to operate within the IFQ program. Dockside enforcement may be more complex if IFQs are based on pounds of halibut. Charter businesses operate out of a large number of ports and numerous docks, boat launches, etc., within each port. It would be necessary to have certified scales at each landing location, or to require all charter vessels to offload halibut at one central weigh-in location in each port, to record accurate weights of the halibut harvested. Both of these options are expensive and problematic. USCG and NMFS concur that the easiest way to manage the quota at the operator level is by the number of fish

- Many charter operators fillet halibut while the vessel is returning from the fishing grounds to shore to offload their clients and fish. Federal regulations prohibit filleting or mutilating halibut in such manner that would prevent determination of the number of fish on board. An enforcement officer could still determine the number of halibut harvested even if the fish were filleted, but determining the number of pounds harvested would not be possible. Onsite survey data collected in Area 2C during 2000 indicates that nearly 60% (range 11% to 88%) of the halibut landed by charter vessels had already been cleaned at sea. This issue (and that of accurate collection of harvest statistics) would go away if the IPHC simply required landing of fish with meat on and in a condition that allowed measurement of length.

As stated by the SSC in its February 2001 minutes:

> *Very few IFQ programs have been specified in numbers of fish. One such fishery, a commercial fishery for lake trout in Wisconsin, has noted a problem with highgrading of catch (NRC 1999a).*
>
> *The principal concern about highgrading in the charter fishery with halibut IFQ expressed in numbers of fish arises from the way that the number of fish is determined. It is proposed that the IFQ in numbers be based on the ratio of the QS-pool expressed in pounds and the average weight of sport-caught halibut harvested in the preceding year. If the average weight of fish caught in year t is greater that the average weight in year t-1, this approach will allow the total weight of halibut caught in the charter sector to exceed the intended charter sector allocation. However, this problem is unlikely to be significant over the long run because the specification of IFQ in numbers of fish in year t+1 will be based on the average weight of charter caught fish in year t. In addition, concerns about highgrading may be mitigated by the fact that highgrading is already a characteristic of the sport fishery and release mortality is*

relatively low for halibut. Moreover, because the fishery is currently subject to bag and possession limits, the incentive of anglers to highgrade are unlikely to increase. The effect of an IFQ program based on numbers of fish on the incentive of charter operators to highgrade (lowgrade) are uncertain and will depend on angler demand for various trip attributes (e.g., 'high probability of catching bag limit', 'high probability of catching large fish'), the ability of anglers to identify the trip attributes that are provided by charter operators, and on the ability of charter operators to offer differing trip attributes.

The Council requested additional analysis of whether to issue halibut charter IFQs in pounds or fish. Additional analysis from ADF&G follows (R. Bentz pers. commun.). This issue addresses whether halibut charter IFQs should be awarded to charter operators in pounds or numbers of fish. Some favor pounds because that is used in the commercial program and is the basis of the stock assessment. Others favor an approach based on numbers given that the basic business unit on a charter boat is the number of clients and their halibut needs under a bag limit. Basing annual IFQs on numbers rather than pounds would have little biological impact. Because the charter harvest is a relatively minor removal, errors associated with such an approach would be masked by errors associated with stock biomass or harvest estimation. The principal merits and disadvantages of specifying IFQs in numbers of fish are scattered throughout the analysis. They include:

Merits:

- Current management and data collection is based on numbers of fish. Charter operators report numbers of fish harvested in the ADF&G logbook. Bag and possession limits are already specified in numbers of fish. All anglers (guided and unguided) report harvest in numbers of fish for the statewide harvest survey. All ADF&G on-site surveys report harvest in numbers of fish.

- Basing IFQs on numbers of fish simplifies offloading, reporting, and enforcement by eliminating the weighing requirement. It would be prohibitively expensive to establish official weight stations at all ports of landing, and many vessels land fish at private property. If only a few weigh stations are set up, it would be onerous to require the large numbers of charter vessels to offload and weigh their harvest daily.

- Expressing charter halibut IFQ in numbers may have enforcement advantages. The Coast Guard has suggested that operators be allocated uniquely coded tags at the start of each year equal to the number of halibut they are allocated under the IFQ. Operators could be required to affix a tag to each carcass landed. When the tags run out, legal fishing is done and the presence of untagged fish aboard a charter vessel would constitute an obvious violation of the IFQ program. The EA/RIR should include additional detail about this system and its application to either a number or weight based programs.

Disadvantages:

- Estimates of average weight are not available for individual vessels or for all ports of landing. The Council would have to use either the area-wide or port-specific estimates of average weight to convert poundage to numbers of fish.

- Annual calculations of IFQs may not be equitable. Initial allocation of quota share using area-wide average weight will favor charter operators who catch smaller than average fish (because it will

inflate their average) and similarly disadvantage charter operators who catch larger than average fish (contrary to discussion on page 219 of the IFQ analysis). Using port-specific estimates will be slightly more equitable, but in some cases vessels will have fished waters or made landings at ports for which there are no estimates of average weight. Assumptions of average weight made for these vessels may be inaccurate because existing data show a substantial amount of variation in average weights among ports (Tables 3.4 and 3.11).

- Specification of IFQs in numbers of fish requires estimates of average weight that are currently provided by ADF&G. The State of Alaska is concerned about being locked into a long-term commitment to collect average weights at various ports in 2C and 3A. If funding levels decline in the future this program could conflict with core programs the department is currently conducting on a number of other state managed species.

- Transfer of IFQs between charter and commercial sectors might administratively be a little more difficult if specified in numbers of fish.

Highgrading has also been expressed as a concern. The principal concern about highgrading in the charter fishery with halibut IFQ expressed in numbers of fish arises from the way that the number of fish is determined. It is proposed that the IFQ in numbers be based on the ratio of the QS-pool expressed in pounds and the average weight of sport-caught halibut harvested in the preceding year. If the average weight of fish caught in year t were greater that the average weight in year t-1, this approach would allow the total weight of halibut caught in the charter sector to exceed the intended charter sector allocation.

This is not likely to be an important issue for a couple reasons. First, it is to the charter operators disadvantage to highgrade because they are paid by the trip, rather than by the pound. To date, charter clients in Alaska typically have paid for the opportunity to fish, not for the fish themselves. Extra fees or discounts are not typically applied for especially large or small fish, so there is little incentive to highgrade for especially large fish. Second, there is already a substantial amount of highgrading occurring in the charter fishery under the two-fish bag limit. Charter anglers have released 31-52% of the halibut they caught in Areas 2C and 3A over the last five years, yet the average harvest per angler is still significantly less than the bag limit.

Lowgrading, or selecting for smaller fish in the harvest, is more likely an issue of concern, whether the IFQ is specified in numbers or pounds (as pointed out in section 4.2.9). A charter operator may exert all possible strategies to ensure that clients catch smaller fish, in order to squeeze more charter trips, and hence more income, from their IFQ. There would be more incentive to do this any time stock biomass or the value of an operator's quota share is decreasing.

Decreases in average weight in the charter fishery caused by lowgrading may have impacts on the assessment of the stock. The IPHC currently assumes that the sport harvest (charter and non-charter) has the same age and size composition as the commercial fishery, even though a substantial portion of the overall sport harvest (about 40% in number and 25% in weight) is below the commercial minimum size of 32 inches. This is not considered a major source of error because sublegal-sized fish taken in the sport fishery are just a little under 32 inches. Additional decreases in the size of charter-caught fish could necessitate correct specification of the sport harvest.

It is uncertain to what extent highgrading or lowgrading would occur, and will depend on angler demand for various trip attributes (e.g., 'high probability of catching bag limit', 'high probability of catching large fish'), the ability of anglers to identify the trip attributes that are provided by charter operators, and on the ability of charter operators to offer differing trip attributes.

4.2.10 Issue 10 - Reporting of landings

The costs associated with reporting the charter harvest of halibut under an IFQ system depends on the level of verification that the management agencies will require. Issue 10 addresses reporting of halibut IFQs fished in the charter sector. Two reporting vehicles have been suggested for reporting charter halibut IFQs. Options 1 and 2 are not mutually exclusive, since the ADF&G logbook currently requires reporting at the end of every trip. Staff concludes that a third option to require reporting station nearly everywhere a charter vessel might land is infeasible. A fish tag system was included during initial review at the suggestion of the USCG.

As described in the Monitoring and Enforcement section of the EA/RIR for the commercial IFQ programs (Council 1992), the introduction of individual fishery quotas into the halibut charter fishery off Alaska will necessitate a dramatic shift in the way fisheries regulations are enforced. Under an individual fishing quota system for the charter sector, the focus of monitoring and enforcement shifts to the point of landing.

The enforcement program for the commercial IFQ program had four goals. The same goals may be applied to the development of a charter IFQ program.

1. The first and foremost goal is to create an environment conducive to voluntary compliance.

2. The second goal is to design a program that provides adequate enforcement resources to respond to known violations. For any enforcement program to be effective it is vital to be able to apprehend and prosecute known violators. The simple ability to detect a violation is no guarantee of compliance. Failure to prosecute known violators can have the effect of encouraging even more noncompliance.

3. The third goal is to provide an enforcement program that is cost effective and realistic in terms of today's budget concerns. Certainly, an enforcement program could be designed to overwhelm the most determined fishery violator.

4. The final goal is to provide an enforcement program that does not unnecessarily interfere with normal and traditional business practices.

Option 1. Require operator to report landings at conclusion of trip

For enforcement and monitoring of charter IFQ accounts, trip-based reporting is a likely staff recommendation. Because some charter operators take two "trips" in any given day, **staff suggests Council consideration of a sub option**: Once every day in which a "trip" occurs. NMFS Enforcement has indicated that daily reporting may be acceptable to accommodate multi-trip per day charters, but would not have to be required to accommodate multi-day charters).

Trip-based reporting would mirror the requirement for the commercial sector. It may entail the card swipe system currently used in the commercial sector. Electronic reporting may be required for both sectors as technology improves by the time of charter IFQ implementation.

The likely staff recommendation would be that ADF&G would continue its weekly logbook for the collection of all marine sportfish harvest and effort information. Information collected under this program includes: number of fish landed and/or released, date of landing, location of fishing, hours fished, number of clients, number of lines fished, ownership of the vessel, and the identity of the operator. The logbook program was approved to meet several needs identified by the Board of Fisheries: (1) inseason estimates of Southeast sport charter harvest of chinook salmon; (2) individual vessel-based sport charter information; (3) effort and harvest

information beyond that obtained through the angler-based statewide sport fish survey and on-site creel surveys; (4) Council needs in managing halibut; and (5) BOF needs in its deliberations of regulatory and local management plan proposals (Dean and Howe 1999).

NMFS RAM Division would either access the halibut harvest data from those logbooks or, integrate the charter sector into its existing card swipe system for each trip or planned electronic reporting (also tripped-based) if weekly reporting did not meet monitoring and enforcement needs for IFQ accounting. However, a card-swipe or trip-based report (other than the ADF&G logbook) may be impractical. But not, perhaps, some other technology that still allows for "real-time" reporting, account balance retrieval, and harvest monitoring. A substantial number of charter vessels conclude their trips at remote lodges, barges or ports with no infrastructure or enforcement. This may also hinder development of charter fisheries in remote areas (e.g. Kodiak, Southeast).

Note that agency staff do not envision an enforcement regime that has all the details of the commercial IFQ program; for instance, 6-hour prior notification of landing, shipment reports, Registered Buyer requirements if the product leaves Alaska waters, etc. This could be a fairly simple process; i.e., on any day in which a charter IFQ permit holder has clients with landings, s/he must report those landings (using whatever technology is deemed appropriate and available and reasonably priced) to NMFS. This will allow for close monitoring of account balances, as well as real-time data upon which to base decisions regarding transfers, etc.

It is very likely that electronic IFQ reporting will be a reality by the time the charter IFQ program goes into effect; in that event, it may be that the charter IFQ sector would be in the vanguard of a complete switch-over from card swipe/transaction terminal technology to electronic accounts and reporting on PCS (or some other as yet unknown technology by which an IFQ permit holder could access a central account).

Note that "electronic reporting" in this context is used to mean something other than the existing card swipe/transaction terminal system currently in use. Agency staff envision reporting on the internet via PC or "Palm Pilot" or cell phone or something else – the "something else" being envisioned to ultimately replace the existing IFQ reporting system, thereby simplifying the process and making it more accessible. The same, or similar, system could probably be adapted for recording and transmitting data on the ADF&G logbook.

The point is that it is too early to dwell on the technology; rather, the Council should focus on the policy of what would be required, and why.

Prior to final action, NMFS Sustainable Fisheries Division, RAM Division, NMFS Enforcement, and NOAA General Counsel may advise the Council on a preferred option under this issue once the Council's policy is provided to staff. However, this issue may not be resolved fully by RAM and Enforcement until implementation. It is anticipated that the initial application and appeal process and annual management cycle for the charter fleet would mirror that for commercial sector.

Option 2. ADF&G logbook

A logbook (ADF&G or otherwise) is an effective means of enforcing IFQs if they are specified in numbers of fish, and if landing of whole fish is required. It meets the NMFS enforcement goals of being cost-effective. An enforcement officer simply needs to inspect the catch at the time of offloading and verify that the number of fish landed agrees with the logbook. If not it can be presumed that a false entry has occurred and the IFQ holder is liable for a violation. If enforcement is targeted at daily records then there is an effective risk of violation and what RAM refers to as an "environment conducive to voluntary compliance."

USCG staff recommends that logbooks required to be updated prior to landing (based upon number of fish) would be easiest with remaining balance carried forward (e.g., start with 250 and subtract amount caught each trip to maintain a running balance on board. RAM can validate later based upon daily/weekly reports - mailed or electronic). Another option is to include amounts and lengths of fish. Whether the log books are sent by mail or electronically doesn't matter. Enforcement only needs to be able to quickly determine whether or not they've logged their catch or exceeded their quota.

As described in Dean and Howe (1998), ADF&G implemented a saltwater sportfishing charter vessel logbook program in 1998 for Southeast Alaska - Region I (Area 2C plus Yakutat) and Southcentral Alaska - Region II (Area 3A - minus Yakutat) due to the information needs of the BOF for chinook salmon and of the Council for halibut. The amount of saltwater charter vessel fishing in other areas of the state was known to be minor.

Dean and Howe (1998) describe the tortuous process of collecting, editing, and summarizing the logbook data. Over 100,000 daily records were received from businesses that operated charter vessel during the 1998 fishing season. About eight months of Administrative Clerk time was required to complete data capture for the logbook information.

ADF&G could report four weeks after the end of a fishing week at the earliest, and even this would be <100% reporting (see below). A form does not need to be mailed until a week after fishing is completed. Another week minimum should be allowed for mailing and handling in area offices, and two weeks to accommodate data entry schedules. Data entry statistics for 2000 indicate that overall roughly 75-85% of a week's forms are entered within the four week window. It varies, in part, because some weeks have more forms. The remaining forms are entered later primarily due to late reporting. However, reporting compliance varies by business. Additional programming costs related to specific reports desired by NMFS are expected. There should also be increased enforcement costs to monitor compliance. For more timely weekly reports, a paper-based mail-in system may not be an efficient approach for data collection to monitor charter IFQs.

The time invested in this process is by no means trivial. The key to capturing missing/erroneous data is a thorough review at the area office level and NOT during key punching at RTS. The delay from identification of the problems to eventual contact and follow-up would likely be a month or more at which time the information received for resolving the problem is probably worthless.

Approximately 3,000 logbooks were printed for the 1998 season. Fifteen hundred logbooks were shipped to the Southeast region ADF&G office for redistribution to Southeast area offices. The logbooks for the Southcentral region were delivered to ADF&G area offices in Anchorage, Homer, Soldotna, the Kenai River Center in Soldotna, Fairbanks, Glennallen, Delta, and Cordova, and were also delivered to Fish Wildlife Protection Offices and staff in Valdez and Seward. ADF&G area staff then issued the logbooks to representatives or owners of sport fishing businesses that intended to provide saltwater sportfishing charter vessel services. Most logbooks were issued over the counter at the area offices along with mail back labels, maps and a list of frequently asked questions that related to the logbook program. Logbooks were also mailed to remote locations upon request. The completed logbook sheets could also be dropped off at the local area ADF&G offices, put in drop off boxes located around certain harbors, or given to creel technicians that were working on the docks.

ADF&G is considering continuation of its logbook program for its own management needs. It has no regulatory or other obligation to collect or disseminate halibut fishery data to the Council. It is unlikely that ADF&G staff could enter, correct, and revise the data for the quick turn-around needs of quota monitoring by RAM and Enforcement Divisions.

Option 3. Requiring a reporting station in every city and charter boat location to accurately weigh every halibut caught.

Option 3 was added to the analysis during preliminary review. Agency staff suggests it may be unwieldy, intrusive, and probably unnecessary (especially if the charter IFQ permit is issued in numbers of fish). It could require certified scales at every conceivable landing location (including remote lodges and other locations in which the costs could be excessive). It would undoubtedly increase the cost of doing business for a number of charter operators.

If the permits are issued in numbers of fish, simply reporting (electronically, with waivers from that requirement available under certain circumstances) on a daily basis should be adequate to meet the goals of harvest monitoring on a real-time basis and maintaining IFQ account balances.

Option 4. Fish tag system

USCG reports that a fish tag system is used in east coast recreational fisheries. Each operator would be issued a stack of tags based upon their quota/unique ID. The operator tags each fish when caught and the tag (with the QS holder's number) would remain on until the fish is landed. This may be a good option when quota is based on the number of fish and not on weight. Every landed halibut from a charter boat would be tagged. Un-tagged fish would have been landed by an unauthorized participant and they would be in violation. The tags run out when quota runs out. State personnel would note whether or not a tag was on the fish as well. Enforcement would issue a violation later if a charter operator did was found to be in violation.

This option would require landing whole fish and not filets. This may require a change in fishing practices, particularly in Area 2C where charter boat operators are on a tight schedule to get cruise ship passengers in and out quickly, as they filet on the way in to port to save time.

The issue of requiring locking tags for each fish harvested has come up several times in the recent past in the form of sport fishing proposals submitted to the Board of Fisheries (R. Bentz pers. Commun.). After analyzing a tag requirement, ADF&G's opinion was that a locking tag program was not a cost effective way to enforce sport fishing harvest regulations. One potential benefit of a locking tag program could be enforcement through peer pressure among charter operators fishing out of a common port. If one charter operator makes the commitment to purchase IFQ to extend his fishing season and sees a competing charter business offloading halibut without locking tags they might inform enforcement officials of the illegal activities.

For a tag program to be successful, enforcement monitoring during the fishery and at key angler exit points must occur. Without adequate enforcement a locking tag program is no more effective than a harvest record program. However, the costs associated with a locking tag program are significantly higher than any paper recording program. The department estimated that it would cost over $100,000 to implement a locking tag program for king salmon on the Kenai Peninsula in the 1980's.

USCG staff provided additional detail regrading implementation of the proposed program (LT. P. Thorne, pers. commun.). The tags proposed under this option are disposable, one-time use plastic security seals, imprinted with serialized control numbers and color-coded between years. A tag would be affixed to a retained halibut through the head or tail indicating that one of the fish allocated to the charter QS holder has been harvested. When the tags run out, legal fishing is done and the presence of untagged fish aboard a charter vessel would constitute an obvious violation of the IFQ program.

The tagging system proposed under this option is meant to augment the current ADF&G log book reporting system, as described in Annex II. Where comparisons to other possible management systems are appropriate, this analysis will compare costs/benefits of the fish tag/log book system to a swipe card/terminal trip reporting system and the current log book system alone.

A. Issuance of Tags

The use of a tagging system would require a QS holder's annual quota to be expressed in numbers of fish. Analysis of the costs and benefits of quota expressed as numbers of fish vs. weight of fish is found in section 4.2.9. To provide a QS holder with annual quota expressed as number of fish, QS would be translated to quota weight using the annual GHL, then converted to numbers of fish using an average weight per fish, based on creel surveys from the previous year. The most logical time for tags to be issued would be in the NMFS RAM division's annual pre-season IFQ permit mailing to QS holders.

B. Transfer of Tags

The issue of the use of average fish weight referenced to particular regions (e.g. 2C vs. 3A) or ports has trade-offs with respect to ease of management vs. accuracy of the weight-to-number of fish conversion. A full analysis of these trade-offs is shown/discussed in section 4.2.9. As it relates to a tagging system, the use of one average weight for the entire program *may* allow direct transfer of tags from seller to buyer when QS is sold or quota is leased. This could speed the administrative process of QS transfer or recording of a lease and make the management system more supportive of short-notice transfers to accommodate market needs. The ability to sell QS or lease quota on short notice to accommodate market needs is expressed in section 4.2.5 as a generally desirable attribute of a mature market. The use of weights referenced to regions or ports would require tags to be disposed of or returned to NMFS, with NMFS transferring QS and issuing tags to the new owner.

C. Use of fish tags

The key to ensuring that a tagging system is an effective tool for management and enforcement is 1) ensuring the tag be affixed in a fashion that makes it not reusable, and 2) that it is affixed at time of retention and retained on the fish until after the fish is landed at the pier.

1) Method of tagging

As stated earlier, for the tags to represent an effective limit of harvest they must be employed in a fashion that does not allow them to be used on more than one fish. The tag must therefore penetrate a part of the fish carcass (or fillets as discussed below) and be locked at the ends. After use, the tag must be cut and discarded.

2) Time of tagging

Tags should be affixed to the fish at the time of retention on board the charter vessel. That time will be minutes after the fish is brought over the rail. CG staff consultation with the Alaska State Fish and Wildlife Protection staff indicates that halibut may be brought on board momentarily to weigh, photograph, clear tackle, etc., but then must be either harvested or returned to the sea.

Highgrading is illegal under state law. Keeping live fish on a stringer for the purposes of cycling through fish to highgrade would constitute illegal retention of live fish onboard the vessel. Discard of dead fish for the

purpose of highgrading is considered "wanton waste", which is currently illegal. The fish tag system, therefore, need not be designed to support such activities.

Immediately following the affixing of the tag, the fish and tag number would be required to be logged in the ADF&G logbook.

3) Time of Tag Removal

To be an effective means of management and a source of deterrence to illegal activity, the tag must remain on the fish until after the fish is landed at the dock. Such a requirement to land tagged fish provides a major source of peer deterrence. The landing of untagged fish at the central public docks located in many state ports would not likely go unnoticed by peer charter operators interested in protecting their own investment.

4) Use of Tags in a Processing At Sea Operation

Section 4.2.9 states that as much as 60% of halibut caught on charter boats in Area 2C is legally processed at sea. Guiding federal and state regulation allows for at-sea processing but requires such processing to leave the halibut components in such a state as to allow enforcement officers the ability to identify how many fish were harvested. Processing halibut at sea is an important part of the charter industry operation and any proposalto restrict that activity to aid in enforcement of a management system should be considered carefully.

On the issue of processing at sea, there are generally three options that have been identified that would be compatible with a tagging system:

a) Prohibit processing at sea and require all fish to be landed whole and tagged. This would best support enforcement and deterrence goals of the management system, but would negatively impact many charter operations.

b) Allow at-sea processing to continue, but require carcasses to be tagged and retained until after the boat returns to the pier. This option would preserve most of the desired enforcement/deterrence effects, and let the industry operate virtually unfettered. One important caveat to this option is that it would be applicable only to boats running a single charter each day. Multiple charters could easily retain the carcasses to allow for their recycling. Under this option, therefore, operations running multiple charters each day would be required to land whole fish or discard carcasses prior to departure for the next trip. Passengers will think something is odd if the skipper brings carcasses back out on follow-on trips.

c) Allow processing by all charter operations down to the level of separation of 4 fillets from the carcass. The tag would then be affixed through all 4 fillets and remain with the fillets until after landing at the pier. This option would retain most of the desired enforcement/deterrence effects and would be applicable to all types of charter operations. It could, however, represent a significant negative impact on the operational practices of some charter businesses.

D. Overall advantages of the tagging/logbook system

In summary, adoption of a tagging/logbook system would have advantages to QS holders, program managers, and enforcement personnel when compared to a logbook only and trip reporting system.

1) QS holders would know at the time of the pre-season permit mailout exactly how many fish they were authorized to harvest that year. This would enable them to plan their business for the season and buy/sell QS accordingly.

This system would improve the likelihood of overall industry compliance with the management goal of a limited harvest when compared to a log-book-only system and therefore represent to the QS holder a better protection of his/her QS investment. Requiring fish to remain tagged until after landing at the dock will encourage peer monitoring. Compliance at the customer level could also be addressed by requiring charter operators to inform customers of the tagging requirement, and/or require such regulation be posted on the vessel

2) Program managers would see their goal to limit harvest to the GHL supported at the outset of the season by a regulatory measure that physically defined the amount of harvest. Year –to-year management of the program would continue using logbook and survey data. The use of a tagging system *may* obviate the need to use logbook data for in-season management. Such in-season management based on weekly log book submissions is described in section 4.2.10 as problematical.

A system of centralized swipe card terminals at each port with or without weigh stations (depending on sub-option) is another option proposed. An advantage of this option would be that it would allow quota to be represented in terms of fish weight, perhaps making the charter system more compatible with commercial system. Another advantage is that it could allow for effective in-season data collection to aid management and control of harvest.

These advantages would come, however, at a significant price both to managers and QS holders. Managers would be burdened with the fiscal cost of standing up and maintaining the physical and personnel infrastructure of the swipe card/terminal system. Charter operators would have to significantly alter their operational practices to offload at a particular point in each harbor, or make arrangements for reporting from remote locations. In the case of short-term charters from cruise ships, this reporting system may represent a serious barrier for operators to overcome. A weigh station approach presents the important issue of ensuring all the fish are in fact taken to the station, thus adding another enforcement component.

3) For enforcement personnel, the tagging system coupled with logbook entry at the time of fish retention, would result in an accounting of harvest for both the day (bag limit) and annual quota allocation that is clear to an enforcement official any time/day of the season. The deterrence effect of requiring tagged fish be landed in port has been stated earlier.

The tagging system likely represents an augmentation to the current log book requirements that would provide business stability and security to QS holders, an additional level of harvest control to managers, and an effective tool to enforcement officers. Such a tagging system could provide these benefits at a significantly reduced cost to managers and burden to the charter operations when compared to a swipe card/terminal trip reporting system.

E. Cost of tagging system

A current fish tagging system that can be examined to draw conclusions about the cost of a future Alaskan halibut charter tag system is the Maryland State striped bass commercial fishery. In that fishery, the state Department of Natural Resources (DNR) issues approximately 150,000 to 200,000 tags annually to 1200 commercial striped bass fishermen. Fishermen must tag all harvested fish and deliver the fish tagged to

authorized buying stations. Buyers are required to call in to a central DNR data recorder daily with the numbers of tagged fish bought.

The scope of that fishery is comparable to Alaska's current charter halibut fishery. In 1999, approximately 1000 halibut charter operations were in business. Based on 1999 average fish weights for areas 2C and 3A, charter operators would have harvested approximately 250,000 fish in 1999 if they had fished up to the GHL percentages currently established by the Council.

Maryland State DNR reports that the purchase price for each striped bass tag is 4 cents. DNR estimates that the cost to procure the tags, handle and mail tags to fishermen, and maintain the tracking database and call-in system is 30 cents per tag.

CG staff priced 300,000 tags of the appropriate size for halibut at 8 cents per tag, delivered to Juneau.

300,000 tags @ 30 cents per tag results in a tagging sytem costing $90,000.

Given the lower and upper bounds of the estimated number of persons eligible to receive QS:

$90k divided by 655 initial QS holders = $137.40 per QS holder
$90k divided by 1107 initial QS holders = $81.30 per QS holder

4.2.11 Issue 11. Community Set-Aside

This section considers the economic and socioeconomic implications of setting aside halibut quota for Gulf communities, including net benefit and distributional effects. The analysis is intended to provide sufficient information to assist the Council in its April 2001 decision regarding four issues: (1) *whether* to set-aside quota for Gulf communities, (2) the *magnitude* of the set-aside, (3) the *source* of the set-aside quota (charter and/or commercial), and (4) whether or not to include a *sunset* provision. The options under consideration are as follows:

Option 1. No community set-aside.

Option 2. Set aside 0.5% to 2.5% of the combined commercial/charter TAC for Gulf communities.

Suboption 1. Source of set-aside

- A. equal pounds from commercial and charter sectors
- B. proportional amount based on split between commercial and charter sectors
- C. 100% of pounds taken out of charter sector

Suboption 2. Sunset provision

- A. no sunset provision
- B. sunset in 5 years
- C. sunset in 10 years
- D. persons participating in the set-aside program at the time of sunset would be allowed to operate within the guidelines of the program.

As a backdrop for the community set-aside issue, it may be useful to consider some of the findings and recommendations noted in the NRC (1999a) study specific to communities. In addition, since the primary purpose of the set-aside is to remove an economic barrier to entry into the charter industry for underdeveloped Gulf communities, it may be helpful to consider the potential value of the economic barrier

created by the charter IFQ program. Concerns have been raised, however, that removal of the economic barrier associated with the need to purchase enough halibut to start and operate a charter business may not be sufficient to allow for significantly more development of charter businesses (versus the level of development if the charter IFQ program is not implemented) in communities targeted by the set-aside because of other significant economic and non-economic barriers to entry. The concern is that it may be difficult for communities to realize the goals of the community set-aside since other significant barriers to entry exist that could hinder development of charter businesses in the target communities. Thus, other potential barriers to entry into the charter industry, including economic and non-economic barriers, are also discussed here to provide a context for considering the options under this issue.

NRC (1999a) Study Comments on Community Issues

Initial Allocation: As a starting point, it may be useful to consider some of the issues raised in the NRC (1999a) study with respect to the initial allocation of quota shares. Namely, the NRC found that (p. 202) "[the] initial allocation of quota share is the most controversial aspect of the implementation phase of IFQ programs. Controversy focuses on who should be eligible for initial allocations and the criteria that should be used to allocate shares. Furthermore, initial allocation of quota can result in windfall gains to the recipients if the quota shares are transferable and measures are not taken to address this issue." The NRC study also found that (p. 203) "catch history has been used as the primary factor for determining the initial allocation of quota among participants in the U.S. IFQ fisheries [since] catch history is perceived by fishermen as a reasonable and fair measure of participation in a fishery." With respect to potential allocations to communities, the NRC study found that (p. 206) "catch history, as a measure of participation in a fishery, reflects the participation not only of individuals and occupational groups, but also of fishing communities. From this perspective, communities may be entitled to initial quota allocations." As a potential outcome to this approach, the NRC study points out that (p. 206) "[community fishing quotas] could contribute to community sustainability in areas that are heavily dependent on fishing for social, cultural, and economic values and/or are lacking in alternative economic opportunities."

With respect to allocations to communities, the NRC (1999a) study makes the following recommendation (p. 206): "The committee recommends that Councils consider including fishing communities in the initial allocation of IFQs, where appropriate, and that the Secretary of Commerce interpret the language in the Magnuson-Stevens Act pertaining to fishing communities (Sec. 303[b][6][E] and National Standard 8) to support this approach to limited access management." In setting criteria for which communities may hold quota, the NRC study suggests (p.206) "a range of factors, such as proximity to the resource, dependence on the resource, contribution of fishing to the community's economic and social well-being, and historic participation in the fishery …" be considered.

Creation of Barrier to Entry: Extension of the IFQ program to the charter sector creates a new economic barrier to entry into the charter industry in two ways. First, after the initial allocation, quota shares have value and would need to be purchased or leased by any new entrant into the industry that did not receive shares in the initial allocation. Secondly, since quota shares have value and to the extent quota shares are granted or "gifted" to the initial recipients, initial recipients receive a windfall profit. This windfall profit was noted in the NRC (1999a) study as one of the more controversial aspects of the initial allocation. As discussed in the NRC study (p. 142), "[the] recipients of initial allocations of quota shares reap a windfall profit when they sell their shares, which is not available to subsequent holders of the quota shares who must purchase them." In addition, the NRC study noted (p. 202) that the windfall profit may give initial recipients a competitive advantage by "enabling initial recipients to obtain loans to buy additional quota, resulting in significant shifts in the power of quota holders versus others in the fishery and changes in the composition of stakeholders involved in managing the fishery."

The issues surrounding the barrier to entry and windfall profit resulting from the charter IFQ program are issues for any potential new entrant into the charter industry, not just for individuals living in one of the 37 target communities. With respect to this issue, the NRC study notes the following (p. 158):

> "The Magnuson-Stevens Act currently requires that the regional councils and the Secretary of Commerce, in submitting and approving any new IFQ program after the expiration of the moratorium, address the issue of new entry. Specifically, they are required to have considered allocating a portion of the annual harvest in the fishery for entry-level fishermen, small-vessel owners, and crew members who do not hold or qualify for IFQs (Sec. 303[d][5]). The issue of new entrants is related to the issue of transferability, because market prices for quota shares can be significant barriers to new entrants, and without transferability, new entry can be difficult. A related issue is the availability of loans for the purchase of quota. The North Pacific loan program was created to make loans more available for quota purchases. ... The committee received the suggestion that new entry could be facilitated by setting aside a certain part of the TAC each year for new entrants."

Transferability: With respect to transferability of quota shares, the NRC (1999a) study notes that (p. 167) "[transferability] is one of the most contentious issues in IFQ management. ... Transfer of quota shares can lead to a concentration in the ownership of quota, which may have undesirable side effects." With respect to impacts among communities, the NRC study notes (p. 170) "generally, one may expect communities with a large share of quota to gain more because of more infrastructure and better access to capital, [while] some smaller communities dependent on fisheries and without alternative means of support are likely to suffer severe unemployment and related social and economic problems." Finally, it comments on the potential impact of transferability on 'marginal' participants, including Native groups and women, saying (p. 171) "[as] quotas tend to be concentrated and rights to the resource are removed from the communal frameworks to which fishing has been subjected, they tend to freeze or exaggerate existing patterns of occupational participation, making it more difficult for marginal participants to advance."

On the issue of transferability, the NRC (1999a) study makes the following recommendations (p. 206): "[councils] should be permitted to authorize communities to purchase, hold, manage, and sell IFQs. These communities could use their quota share for community development purposes, as a resource for preserving access for local fishermen, or for reallocation to member fishermen by a variety of means, including loans. If the communities chose to allocate the rights to individual, they could be constrained by covenants or other restrictions to be nontransferable."

Estimated Halibut Resource Requirements for Charter Operators in Target Communities

The value of the economic barrier created by the charter IFQ program (and potentially removed by the community set-aside) may be estimated from (1) the amount of halibut required for typical charter businesses operating in Areas 2C and 3A, and (2) average quota share (QS) transfer prices. Halibut resource requirements for charter operators are estimated first.

Several studies based on angler surveys indicate that one of the most important factors governing the choice of fishing trip location is the potential to catch fish. Typically, the number, size, type and variety of targeted species all contribute to the value of the charter experience although the extent that each contributes is difficult to quantify. While more may be preferred to less if only one species is targeted, charter trips that offer clients the chance to catch fewer numbers of two or more species may be preferred (or have similar value) to single-species trips. Thus, the amount of halibut required by a charter operator will depend, in part, on whether or not halibut is the primary target species. In addition, the amount of halibut required also depends

on trip duration (half-day or full-day trip), clients per trip, utilization rate (full-time or part-time), and phase of development (start-up, developing, mature).

Two alternative approaches can be taken to determine the halibut resource requirements for new and growing charter operators. The first would be to develop demand and supply functions by surveying anglers and existing charter operators. From the angler's perspective, the amount of halibut is an attribute of the charter trip that enters into the angler's decision to participate. From the charter operator's perspective, the amount of halibut is an input required to provide charter services to anglers. This first approach would require a significant amount of data and modeling. Instead, a second approach is taken whereby halibut resource usage rates are calculated for existing charter businesses among the 37 target communities in Areas 2C and 3A using ADF&G logbook data for 1998 and 1999.

Table 4.8 shows average number of trips, average halibut harvest (in numbers of fish) and average harvest per trip for charter vessels *landing* in target communities in Areas 2C and 3A for 1998 and 1999. For each area, the vessel level data (as opposed to community level data) was ranked by the maximum number of trips made by the vessel in 1998 or 1999. The ranked data was then segmented into quartiles as a way to distinguish subgroups within each population of vessels. Thus, for Area 2C, a total of 280 vessels made at least one trip in 1998 or 1999 and landed in one of the target communities in Area 2C. Dividing this data into quartiles (based on trip ranking) resulted in 70 observations for each quartile. Similarly, 80 vessels made at least one trip in 1998 or 1999 and landed in an Area 3A target community, resulting in 20 observations per quartile for Area 3A. Scatter plots of vessel trips versus harvest level are shown in Figure 4.6 for Area 2C (top) and Area 3A (bottom).

Table 4.8 Quartile Averages for Vessel Trips, Harvest and Harvest per Trip for Areas 2C and 3A

		Sample	#	Trips		Harvest		Harvest per Trip	
Quartile	Area	Size	Yrs.	1998	1999	1998	1999	1998	1999
First	2C	70	1.8	54	58	170	171	3.2	3.0
Second	2C	70	1.7	22	21	51	58	2.3	2.6
Third	2C	70	1.3	6	6	13	10	2.7	2.1
Fourth	2C	70	1.1	2	2	3	2	3.0	2.3
First	3A	20	1.7	59	50	340	280	5.3	5.0
Second	3A	20	1.6	15	9	64	41	4.1	4.5
Third	3A	20	1.2	5	4	17	18	4.1	5.8
Fourth	3A	20	1.0	2	1	5	5	5.4	4.6

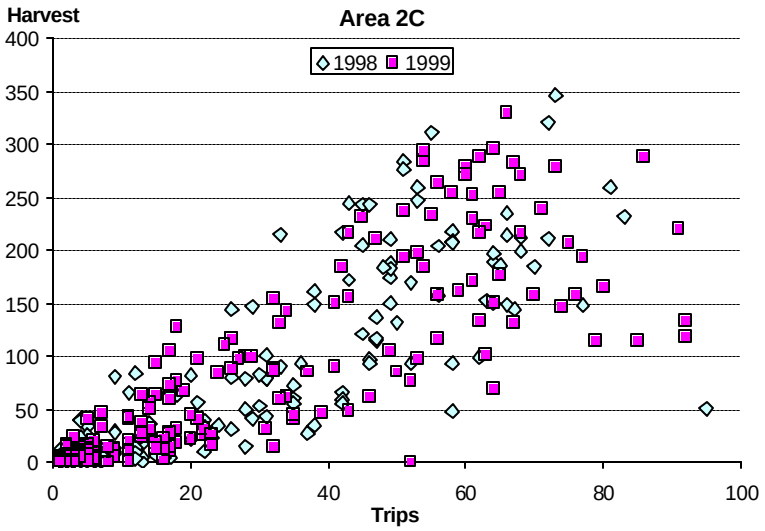
*Vessel data ranked by maximum number of trips in 1998 or 1999, then divided into quartiles.
Source: ADF&G logbook data for 1998 and 1999.

The process of ranking the vessel data by the maximum number of trips in 1998 or 1999 and segmenting the data into quartiles is used as a proxy for identifying subgroups within each pool. The number of trips serves as a proxy for utilization rate (full-time or part-time) and degree of maturity since vessels with a high number of trips in both 1998 and 1999 are likely representative of full-time operators of more established businesses. Thus, statistics for the first quartile may be representative of full-time operators of relatively mature charter businesses. Vessels in the second quartile averaged fewer trips (and lower harvest levels) in both years and statistics for this segment may be representative of either part-time operators or full-time operators of less established businesses (i.e., start-up businesses). Vessels in the third and fourth quartiles reported trips in only one of the years (1998 or 1999) and averaged even fewer trips and lower harvest levels than vessels in the second quartile. Thus, statistics for the third and fourth quartile may be representative of start-up operators that subsequently failed, charterboats that targeted other species (e.g., salmon) or offered other services (e.g., bird/mammal sightseeing), and/or charterboats that 'land' in the target communities infrequently.

The results for the first and second quartiles will be used to estimate halibut resource needs for charter operators in target communities in Areas 2C and 3A. This approach, however, may not reflect the full range of quota share needs for charter businesses operating in the target communities. By ignoring the third and fourth quartiles, the estimates for halibut resource needs may be too high. On the other hand, by using harvest data only for vessels landing in the 'underdeveloped' target communities, the estimates may be too low. Compared to charter businesses based in the major ports (e.g., Homer, Sitka, Juneau, etc.), charter businesses based in remote coastal communities may offer a broader range of charter trip experiences and may have a broader range of halibut resource needs. Nevertheless, the harvest statistics for the first and second quartiles will be used to provide an indication of the typical halibut resource needs of full-time and start-up charter operators so that the value of the barrier to entry created by the charter IFQ program may be estimated.

In Area 2C, vessels in the first quartile averaged 54 trips in 1998 and 58 trips in 1999 and harvested an average of 170 fish in 1998 and 171 in 1999. The average harvest per trip was 3.2 in 1998 and 3.0 in 1999. While these statistics reflect the average for the group, several vessels in the group made more than 90 trips and harvested nearly 300 fish. Vessels in the second quartile averaged 22 trips in 1998 and 21 trips in 1999 and harvested 51 fish and 58 fish in 1998 and 1999, respectively. Most of the vessels in this group reported trips in both 1998 and 1999. The maximum number of trips reported in this group was 44 and the highest harvest level was 244 fish. Statistics for the second quartile are assumed to reflect charter operators that are either part-time or start-up operators that are still developing their client base.

In Area 3A, vessels in the first quartile averaged 59 trips in 1998 and 50 trips in 1999 and harvested an average of 340 fish in 1998 and 280 in 1999. The average harvest per trip was 5.3 in 1998 and 5.0 in 1999. The most number of trips reported was 125 and the highest harvest level was 785 fish. While the average number of trips for vessels in the first quartile is similar for Areas 2C and 3A, the harvest levels in Area 3A are nearly twice the harvest levels in Area 2C. As discussed previously, this may be because charter services in Area 2C may target salmon in addition to halibut and may make more half-day trips. Vessels in the second quartile averaged 15 trips in 1998 and 9 trips in 1999 and harvested on average 64 fish and 41 fish in 1998 and 1999, respectively. The maximum number of trips reported in this group was 22 and the highest harvest level was 173 fish.



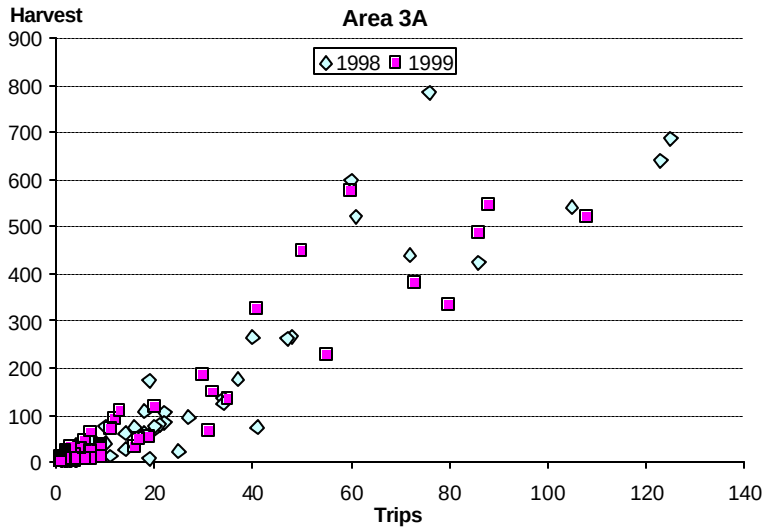


Figure 4.6 Vessel trips versus halibut harvest (in numbers of fish) for Area 2C (top) and Area 3A (bottom).

For each area, the average harvest (per boat) for 1998 and 1999 for the first quartile may be used as an estimate of the halibut requirements for a full-time or mature charter operator. The average harvest per boat for 1998 and 1999 for the second quartile serves as an estimate for part-time or start-up charter operators. Thus, start-up or part-time charter businesses require an estimated 50 fish (per boat per year) in both Areas 2C and 3A (Table 4.9). Full-time or mature charter businesses require about 170 fish (per boat per year) in Area 2C and 310 fish in Area 3A. These figures may be converted into pounds of halibut using the 1999 average weights for Areas 2C and 3A of 18.0 lb/fish and 19.2 lb/fish, respectively. Thus, **start-up operators in Areas 2C and 3A need an estimated 900 lbs and 1,000 lbs of halibut per boat per year. Full-time or mature operators need an estimated 3,000 lbs in Area 2C and 6,000 lbs in Area 3A**. These estimates are somewhat lower than the estimates presented in the Coalition discussion paper on the community set-aside. The Coalition proposal suggests that set-aside allocations to individuals be limited to 2,000 pounds in the first year and that allocations be increased by 2,000 pounds per year up to an individual cap of 10,000 pounds (inclusive of all charter halibut QS held). These higher allocations may make sense, however, if an individual operates more than one vessel or has a client base that allows them to operate above the first quartile's average harvest per vessel.

Table 4.9 Estimated Number, Pounds and Cost of Halibut for Start-Up and Mature Charter Operators

		# Fish	Pounds[1]	Cost[2] ($)
2C	Start-up	50	900	9,100
	Mature	170	3,000	30,400
3A	Start-up	50	1,000	8,600
	Mature	310	6,000	51,300
Gulf Coalition	Start-up		2,000	18,700
	Mature		10,000	93,500

1. Based on average 1999 weights of 18.0 lb/fish and 19.2 lb/fish for Areas 2C and 3A, respectively.
2. Based on mean 1998 halibut QS price in $/IFQ of $10.14 and $8.55 for Areas 2C and 3A, respectively.

Estimated Value of the New Economic Barrier to Entry

The estimated costs of halibut quota assuming the proposed charter IFQ program is implemented may be estimated by multiplying the pounds of halibut by an estimated price of halibut quota. Absent a rigorous model for predicting how QS prices will be impacted by changes in the IFQ program, historical prices of commercial halibut QS may be used as an indicator of future prices. Historical commercial halibut QS transfer prices as reported by the CFEC were presented in Table 3.51 (Section 3.2); the mean transfer price in 1998 dollars per pound of IFQ was $10.14 and $8.55 for Areas 2C and 3A, respectively.[25] Using these mean transfer prices, the estimated costs for halibut required by charter businesses potentially based in target communities in Areas 2C and 3A are shown in Table 4.9.

After the initial allocation, new entrants into the charter industry may need to invest an estimated $8,600-$18,700 in halibut QS to reserve access to the resource for their clients. As these new charter businesses or pre-existing charter businesses grow, additional purchases of halibut QS would likely be required. The estimated value of halibut QS needed to support a full-time, mature charter business is $30,400 for Area 2C, $51,300 for Area 3A and $93,500 using the Coalition estimate of 10,000 pounds (and an average price of $9.35 - the mean of the reported 2C and 3A prices). While the start-up cost for part-time operation is not extraordinary, neither is it insignificant. It is comparable, for example, to the cost of a small or used car. The potential cost for halibut quota shares for a full-time operator is meaningful, however, and comparable to the cost of a major equipment item (e.g., a boat).

In either case, whether the new charter business planned to operate on a part-time or full-time basis, the potential cost of halibut quota represents a new barrier to entry into the industry that does not now exist. This barrier would make it more difficult for *any* potential new entrant (not just those based in the target communities) to start a charter business. It would also make it more costly for existing charter businesses that need additional halibut quota to maintain or expand their activity since, if the charter IFQ program is implemented, these businesses may need to purchase or lease additional halibut QS. On the other hand, to the extent that existing charter business owners receive any halibut QS in the initial allocation, additional purchases may be facilitated by their ability to use such QS as collateral to secure a loan. The ability to use QS received in the initial allocation as collateral is part of the windfall gain to initial recipients.

In addition, both new entrants and existing charter businesses that need to acquire more halibut QS may be able to avail themselves of existing loan programs, such as the North Pacific loan program, to facilitate purchase of halibut QS. The North Pacific loan program, established to assist potential "small" buyers of commercial sablefish and halibut QS, is described in section 3.4.4, including the likelihood that this program would be extended to the charter sector if the charter IFQ program is implemented.

The possibility that the charter IFQ program creates a new economic barrier to entry is an issue for any new entrant, not just for potential new entrants in the 37 target communities. In both cases, the new economic barrier has the potential to preclude formation of new charter businesses. It is possible, however, that the new

[25] It is possible that the transfer prices for the commercial Class D shares (catcher vessels less than 35') may be more reflective of charter quota share prices, although there is no way to predict this with any confidence. If this turns out to be true, the potential costs for halibut quota shares for a start-up or full-time charter operator may be less than those estimated in Table 4.9. For example, using the mean 1998 transfer price for category D halibut QS of $8.46 in Area 2C, estimated costs for halibut would range from $7,600 to $25,400. Similarly, using the mean 1998 transfer price of $6.43 for Category D shares in Area 3A, estimated halibut quota share costs would range from $6,400 to $38,600. These cost estimates are 16.5% and 24.8% lower for Areas 2C and 3A, respectively, than the estimated costs using the mean prices for all commercial halibut quota share categories.

economic barrier poses more of a hardship for potential new entrants in the 37 target communities than for other new entrants because of their relative financial position or because of other challenges associated with starting a charter business in these small, remote communities. These other factors represent potentially more significant barriers to entry for the 37 communities than the need to purchase halibut QS and may be the primary reason why many of the 37 target communities have few or completely lack charter businesses now. That is, access to the halibut resource is not now and has not been a factor preventing development of charter businesses in the 37 communities. The lack of charter businesses in some communities in light of the growth of the industry during the 1990s suggests that other significant barriers to entry may exist. These other potential barriers warrant consideration in order to place the new economic barrier created by the potential implementation of the charter IFQ program into context. Thus, other potential barriers to entry (economic and non-economic) are discussed next.

Other Economic Barriers to Entry

Other potential economic barriers to entry include the cost of a boat and related equipment, the cost of property, and funding needs to cover operating expenses during the start-up phase. Estimated start-up costs and operating expenses for charter businesses are provided in Section 3.4.3.2 based on the ISER guide and charter business survey conducted in 1994 (Haley et al., 1999). Section 3.4.3.2 includes a detailed discussion of the methodology used to conduct the survey, including sample size, response rates by strata and weighting factors. Since the survey had a higher response rate for the stratum of large firms, the average statistics may be skewed by the responses from these firms. Thus, the median statistics may be more relevant to the start-up and operating costs for smaller firms operating in remote communities.

The median and average costs per boat (based on purchase price) are $34,000 and $56,000, respectively (Table 3.69). Including other fishing and transportation equipment, the median and average costs are $55,000 and $105,000, respectively. Since equipment items reported in the survey were purchased over a five-year period (1989-1993), these costs should be adjusted upwards for inflation. Adjusting for inflation, the estimated cost per boat ranges from $40,000 to $67,000 and the estimated overall equipment costs range from $66,000 to $125,000.[26] These costs may be compared to the estimated cost for halibut QS for start-up and full-time operators; start-up operators would need $9,000 to $19,000 and full-time operators would need $30,000 to $94,000 worth of halibut QS. Thus, while the potential cost of halibut QS to support start-up or part-time charter operations is relatively modest (but not insignificant), the cost of QS to support full-time charter operations is comparable to the overall cost of equipment.

In addition to equipment expenditures, about one-third of the survey respondents reported property expenses (e.g., for lodges, warehouses, hangers, land, docks, etc.), the majority of which were located in Area 2C. Of those reporting property expenses, including lease or mortgage expenses, property tax, utilities, maintenance, insurance and other expenses, the median expense (in 1993 dollars) is $13,400 and the average is $64,000 (Table 3.70). While it is not likely that the typical start-up charter operator would need to make such property investments, it may be a more likely requirement in the 37 target communities since such charter businesses may also need to provide overnight lodging amenities to attract clients.

Finally, statistics on operating expenses for the surveyed charter businesses are shown in Table 3.71. The median annual operating expense is $27,400 and the mean is $100,600 (in 1993 dollars). Adjusting for inflation,

[26]Boat costs were adjusted using the producer price index (PPI-Commodities) for transportation equipment - boats. Overall equipment costs were adjusted by using a weighted average of PPI for boats, vehicles and aircraft. In both cases, an average was taken of the adjustment factors for 1989-'98 and 1993-'98.

estimated annual operating expenses range from $29,000 to $106,000[27]. The break-down of these operating expenses indicates that payroll accounts for 34%, transportation (including vehicle leases, fuel and operations, and maintenance) accounts for 30%, administration accounts for 10% and other services (including advertising, legal and accounting) account for 9%. Importantly, most of these expenses would be incurred by the charter business even if no client demand materializes although some savings would be realized in the transportation-related operating expenditures. Furthermore, it is possible that a new charter business would need to fund or take out a loan to cover operating expenses for the first year. This 'seed' money represents another start-up cost for potential new entrants in the charter industry.

These findings indicate that the financial resource requirements to start and operate a charter business are significant. Capital investment in a boat may require an estimated $40,000 to $67,000. If other major equipment items are included, the initial investment may be closer to $66,000 to $125,000. Excluding property-related expenses, operating expenses could range an estimated $29,000 to $106,000. The costs associated with starting and operating a charter business may be higher if opportunity costs are included (although these opportunity costs may be low for residents of the 37 communities since employment opportunities are limited). Thus, the initial capital requirements and substantial financial risk of starting a charter business represent significant economic barriers to entry.

Other Non-Economic Barriers to Entry

Background information is provided in Section 3.4.2 describing the attributes of communities (among the 37 targeted for the set-aside) that have existing charter businesses in comparison to those lacking any appreciable charter operations. In Area 2C, target communities with more developed charter businesses include Craig, Gustavus, Hoonah, Pelican and Wrangell. In Area 3A, Yakutat, Seldovia and Larsen Bay have more charter operations compared to other target communities in the area.

Information provided in Section 3.4.2 includes: the availability of fishing-related services and businesses supporting tourism, geographic location of the 37 communities, availability of transportation services, and infrastructure supporting charter fishing operations (e.g., docks, boat launch, small-boat harbor, etc.). In addition, characteristics of client demand for charter services in Areas 2C and 3A are described in Section 3.4.3 (as well as in 3.2), including source and type of clients, average charter client expenditures and basis for choosing trip location and charter company.

Target communities with more developed charter businesses also have a number of other businesses and services to support sport-fishing and tourism, including other recreational and sight-seeing businesses, and food and lodging amenities. Food and lodging services include businesses licensed as 'Full Service Restaurants,' 'Accommodation & Food Services,' 'Hotels & Lodging,' 'Traveler Accommodations,' and 'RV Parks and Recreational Camps.' Communities with more developed charter businesses also have a range of transportation services and infrastructure to support charterboat operations. For example, Wrangell and Yakutat both have regularly scheduled flights, ferry service, boat launch and/or dock, small-boat harbor and deep-draft dock. For other communities with existing charter businesses, nearly all have scheduled flights or access to the State ferry system and most have a small-boat harbor, docking or boat-launch facilities. Communities that do not yet have any licensed charter businesses also appear to lack scheduled transportation services (air or water) and/or lack a small-boat harbor and dock.

[27]Operating expenses were adjusted using the producer price index (PPI) for the "Water Transportation" industry (revised, current series). Another approach was considered of adjusting each component of the operating expenses (payroll, transportation, accounting, administration, taxes, etc.) separately but suitable price indexes for each component are not available.

In terms of the geographic location of the 37 communities (Figure 3.12), all except Hyder are accessible by air or water only. About half of the 23 target communities in Area 2C are on or near Prince of Wales Island; many have access to the Prince of Wales Island road system and to the State ferry service at Hollis. Among the 14 communities in Area 3A, nearly half are located on or near Kodiak Island and a few are located on the Kenai Peninsula. With respect to the communities that have more developed charter businesses, there is no single geographical feature that could explain their relative success.

There are also important differences in the client base for charter services in Area 2C versus Area 3A. In Area 2C, the vast majority of charter clients are non-residents, many of which arrive on cruise ships, the dominant mode of arrival for visitors to that area. Tourists arriving on cruise ships tend to face more time constraints and consume more half-day charter trips. These half-day trips, in turn, tend to target salmon over halibut since greater distances and time are needed to reach the more productive halibut grounds. By contrast, a larger percentage of charter clients in Area 3A are residents arriving from Anchorage and surrounding population centers. Fewer residents in Area 3A own or have access to a boat and, instead, may rely more on charter services. Non-residents arrive mostly via domestic air travel (rather than cruise ships). Finally, charter clients in Area 3A tend to take more full-day trips that target halibut.

Other important aspects of client demand include the average expenditures on charter services and non-fishing services (transportation and lodging), reasons for taking a charter trip, and basis for choosing the trip location. These aspects of client demand are relevant to whether charter businesses in the 37 target communities may have difficulty attracting clients. A composite of results from several surveys indicate that non-residents typically spend more than residents for charter services, transportation, and lodging. For charter trips from the Kenai Peninsula, non-residents spent on average $190 for charter and fishing-related services and an additional $104 per day for transportation and lodging. Residents spent $130-$137 for charter and other fishing services but only $30-$75 per day for transportation and lodging. Since these average costs are based on charter trips from the Kenai Peninsula, the transportation and lodging costs do not likely reflect the potential costs for these services in the target communities. In fact, transportation costs to travel to any of the 37 communities are likely much higher. While similar angler expenditure data is lacking for Area 2C, anecdotal data indicates that typical prices of charter trips in Area 2C are higher; charter trip prices in Juneau ranged from $150-$220 per person for full-day trips and $150-$190 for half-day trips (which typically do not target halibut, however).

With respect to the choice of fishing location, there are differences between residents and non-residents. Both resident and non-resident anglers consider the potential to catch fish the most important factor in their choice of fishing location (point of departure for charter trip). Residents also placed importance on the area having few other anglers, being inexpensive and quick to get to, with road access. Compared to resident anglers, non-resident anglers placed more importance on the area having exceptional beauty and, although still relevant, road access, travel cost, and travel time were less important.

In summary, it appears that there may be several unique issues for the 37 communities that may make it difficult for them to develop charter businesses. By definition, the 37 communities under consideration are small (population less than 2,500), coastal, fishing dependent and lack road access. Yet, these common attributes may make it more difficult for the 37 communities to develop and sustain viable charter operations. In addition to the issues that any new charter operator faces, these rural communities may be additionally challenged by the lack of road access, transportation services, boat facilities, and other services to support tourism. Based on the survey results discussed in section 3.4, it seems less likely that clients primarily interested in catching fish would spend the additional money or time to travel to a more remote location. This may be especially true in Area 3A where a larger percentage of charter clients are residents but may be less true in Area 2C where the vast majority of charter clients are non-residents.

Because of the lack of road access and the additional travel time and money required, the targeted communities may need to offer other amenities or recreational opportunities, in addition to charter fishing trips, to attract clients. For example, the charter trip may need to be packaged with transportation, lodging, and other recreational activities. As a result, charter businesses may be less able to operate on a dedicated basis and may need to provide and invest in other services or align themselves with other businesses that provide these other services. This could make the economics of starting and developing a successful charter business significantly different, compared to starting a charter business in a major port. Communities that lack regularly scheduled transportation, food, and lodging services may need to invest in the development of these services before or during development of charter businesses.

Thus, the following factors may have limited past development of charter businesses in some of the 37 target communities and may represent significant barriers to entry into the charter industry for these communities:

1. Remote location of community (more time and money required to get there)
2. Lack of road access
3. Lack of scheduled flights or ferry service
4. Lack of boat harbor, dock or boat launch
5. Lack of other recreational opportunities (freshwater fishing, golfing, sightseeing, etc.)
6. Lack of food and lodging provisions
7. Lack of tourism
8. Community prefers to limit tourism
9. Lack of beautiful scenery
10. Proximity to another port used for charterboats
11. Individuals lack financial resources
12. Reluctance to make commitment or assume risk
13. Lack of business experience and skill
14. Lack of USCG license

Of all factors listed, the remoteness of the community is likely the factor most limiting to the development of charter businesses in the 37 target communities. Even if all the other factors can be addressed, relatively few clients interested in halibut charter fishing are likely willing to spend the time or pay the cost to go to a more remote location. Even if packaged with transportation and lodging, halibut charter fishing from a more remote community would likely appeal to only a small percentage of clients. It would likely appeal most to non-resident anglers with above average incomes that are seeking a unique experience and are willing to pay a higher price. While certain charter businesses can target this high-end segment of the market, there are likely limits to how many businesses the charter industry can support in this niche.

4.2.11.1 Option 1. No community set-aside

If the Council adopts this option, the halibut charter IFQ program would be implemented but no halibut quota would be set aside for use by individuals in targeted Gulf communities for purposes of developing halibut charter businesses (although some target community members may qualify to receive QS via the initial allocation). Concerns have been expressed, however, that if no quota is set aside, some Gulf communities that are in the early stages of developing halibut charter businesses may have difficulty achieving long-term viability once the halibut charter IFQ program is implemented. The concern revolves around two issues: (1) that certain smaller Gulf communities are likely to receive fewer halibut QS in the initial allocation; and (2) that implementation of a halibut IFQ system for the charter sector creates a new barrier to entry into the industry. Both outcomes, to the extent that each occurs, may make it more difficult for certain smaller Gulf communities to participate in the halibut charter fishery. The opportunity for communities to develop and

sustain participation in all fisheries, including the halibut charter fishery, is an important consideration in light of the fishing-dependent nature of many of the communities and the lack of alternative economic opportunities.

This section examines these issues in more detail. Specifically, the potential impacts of the proposed halibut charter IFQ program (Issues 2-7) from the perspective of the 37 Gulf communities targeted for the set-aside are considered. Section 4.2.11.1.1 considers the impact of the initial allocation (Issues 2-4) of halibut charter quota shares on the 37 targeted communities. Section 4.2.11.1.2 discusses the options for transferability (Issues 5-7) from the perspective of the target communities.

4.2.11.1.1 Issues 2-4: Impact of Initial Allocation on Targeted Communities

The options governing the initial allocation of halibut charter quota shares were presented under Issues 2, 3 and 4. Issue 2 addressed *who* is eligible to receive QS, Issue 3 outlined various options for *qualification criteria*, and Issue 4 considered the formula for calculating the *amount* of QS to be distributed. The potential impacts of the initial allocation process on the 37 targeted Gulf communities are considered next.

Issue 2: Who is Eligible for Halibut Charter QS

As discussed under Issue 2, initial allocation of QS would be issued to U.S. citizens or U.S. companies with U.S. ownership based on a 51% or 75% ownership criteria. Two types of individuals are being considered for eligibility: (1) charter vessel owner, and (2) bare vessel lessee. The bare vessel lessee is the person that leases a vessel and controls its use as a charterboat for the halibut charter fishery; the lessee may operate the vessel or hire a captain or skipper.

Including charter vessel owners and bare vessel lessees as initial recipients of halibut charter QS would not necessarily disadvantage the 37 communities targeted for the set-aside. As previously shown in Table 3.60, a number of the 37 targeted communities have businesses licensed as 'Fishing Guides.' These businesses may operate vessels owned by the business or may lease vessels. The number of businesses licensed as 'Fishing Guides' in the 37 targeted communities may be reflective of how well each community would fair in the initial allocation. In Area 2C, targeted communities with at least 10 businesses licensed as 'Fishing Guides' include Craig (with 26 licensed businesses), Wrangell (15), Gustavus (13) and Pelican (10). An additional five target communities in Area 2C have at least five businesses licensed as 'Fishing Guides,' including Hoonah, Elfin Cove, Hydaburg, Thorne Bay and Klawock. In Area 3A, Yakutat has 19 businesses licensed as 'Fishing Guides' and Port Lions and Ouzinkie each have five.

The business license data is reasonably consistent with the halibut harvest data for charterboats that *landed* in one of the 37 target communities in 1998 or 1999 (see Table 3.61). In Area 2C, targeted communities with 10 or more businesses licensed as 'Fishing Guides' also have a relatively large number of unique charterboats that harvested halibut in 1998 and 1999, including Craig, Gustavus and Wrangell. Pelican, which had 10 licensed fishing guide businesses, had relatively low charter halibut harvests in 1998 and 1999. It is possible, however, that charterboats operating out of Pelican did not target halibut exclusively. The number of charterboats and reported halibut harvests in Elfin Cove greatly exceeded the number of businesses licensed as 'Fishing Guides.' It had seven businesses licensed as 'Fishing Guides' but 27-29 unique charterboats landing there that reported halibut harvests in 1998 and 1999. This may be due to either some of the businesses owning a large number of boats or some of the charterboats landing in Elfin Cove may be licensed elsewhere. A few communities had no businesses licensed as 'Fishing Guides' but reported halibut charterboats landing in the community and harvests in 1998 and 1999, including Whale Pass and Port Protection. Again, this may be due to the occasional landing in these communities of charterboats that are

licensed elsewhere. Finally, several of the target communities in Area 2C had no businesses licensed as 'Fishing Guides' and no reported halibut charter harvests in 1998 and 1999, including Edna Bay, Kasaan, and Meyers Chuck.

In Area 3A, Yakutat had both a relatively large number of businesses licensed as 'Fishing Guides' and unique charterboats landing in Yakutat and reporting halibut harvests in 1998 and 1999. Larsen Bay and Seldovia both reported relatively large halibut charter harvests in 1998 and 1999 despite each having few businesses licensed as 'Fishing Guides.' In both cases, this may be due to vessels being licensed in nearby communities (e.g., Seldovia is near Homer and Larsen Bay is near Kodiak). Four target communities in Area 3A had businesses licensed as 'Fishing Guides' but no reported halibut harvests in 1998 and 1999, including Akhiok, Karluk, Ouzinkie, and Tatitlek. It may be possible that these are new businesses in these communities or that these businesses are not targeting halibut. Finally, several communities had no fishing guide businesses and no reported halibut charter harvests in 1998 and 1999, including Nanwalek, Port Graham, and Tyonek.

A potential issue is whether limiting the initial allocation to charter vessel owners or bare vessel lessees could result in some targeted communities receiving relatively few quota shares compared to their historical participation in the fishery. This is not likely to be the case for communities that have both relatively large numbers of businesses licensed as 'Fishing Guides' and relatively high halibut harvests in 1998 and 1999. Several communities, however, reported relatively high halibut harvests in 1998 and 1999 (based on port of landing) but had relatively few licensed businesses, including Elfin Cove in Area 2C and Larsen Bay and Seldovia in Area 3A. For these communities, the actual recipients of the quota shares may be residents elsewhere or may own businesses that are licensed outside these communities. As a result, the amount of quota shares received by residents of these communities may not be reflective of the participation of these communities in the halibut charter fishery as measured by the amount of halibut harvested by charterboats landing in these communities. On the other hand, based on the business license and halibut harvest data, it appears that this may be an issue for only a handful of the 37 communities targeted by the set-aside.

Another potential issue is whether excluding hired skippers and crew from the initial allocation would limit the amount of quota share allocated to residents of the 37 target communities. This could be the case if residents of the communities participate in the halibut charter fishery as skippers or crew members. For example, residents of communities that are located near larger communities with more established charter operations may serve as hired skippers or crew. This may be the case for communities located on Kodiak Island in Area 3A or Prince of Wales Island in Area 2C. On the other hand, to the extent that such residents continue to serve as hired skippers or crew in the charter industry (as opposed to starting their own charter businesses), not receiving halibut quota shares would not necessarily limit their future participation in the industry. Residents that continue to be employed by the charter businesses operating in nearby ports would continue to indirectly benefit the community economically.

Finally, initial allocation directly to the community or appropriate community entity (versus allocation to individuals in the community) as suggested by the NRC (1999a) study is not under consideration at this time. As mentioned earlier, the NRC study suggests several types of criteria for establishing which communities may hold quota including proximity to resource, dependence on resource, contribution of fishing to the community's economic and social well-being, and historic participation in the fishery. Of these suggested criteria, a requirement that communities demonstrate 'historic participation in the fishery' may limit the eligibility of many of the 37 communities being considered for the set-aside. Namely, eligibility based largely on historical participation in the fishery is likely to favor communities with well-developed charter businesses over communities with few or no charter businesses. Thus, while direct allocation of quota shares to the communities is not under consideration at this time, it represents an alternative approach to addressing the concerns and needs of the smaller Gulf communities.

In summary, including charter vessel owners and bare vessel lessees as initial recipients of halibut charter QS would not necessarily disadvantage the 37 communities targeted for the set-aside.

Issue 3: Qualification Criteria

The options for qualification criteria were presented and discussed under Issue 3 (Section 4.2.3). In general, initial allocations will be based on an individual's participation and not the vessel's activity. Five options are being considered for qualification criteria based on different measures of participation in the charter fishery. Participation during 1998 and 1999 is mainly measured by catch history documented in ADF&G logbooks for those years. In addition, longevity in the halibut charter industry is based on evidence provided by IPHC, CFEC and ADF&G business and guide documentation for the years 1995-99. The reader is referred back to Section 4.2.3 for the exact wording of the five options under consideration.

Of the five options being considered, two options (Option 1 and Option 2) rely only on ADF&G logbook data in 1998 and/or 1999. Option 1 requires data for both 1998 and 1999 while Option 2 requires data only for one of the years (1998 or 1999). The other three options (Options 3-5) require evidence of prior participation in the fishery, in addition to ADF&G logbook data. As discussed under Issue 3, it is only possible to estimate the number of initial issues for Options 1 and 2. Since it is difficult to estimate how many individuals will qualify for initial allocations under Options 3-5, the implications of these options for the 37 target communities are discussed qualitatively.

Of interest here is how the 37 Gulf communities would fair under the five options for qualification criteria. In general, the more inclusive the qualification criteria, the better the 37 target communities are likely to fair. Thus, Option 2, which requires ADF&G logbook data for 1998 or 1999, is the most inclusive, while Option 4, which requires logbook data for 1998 and 1999 and evidence of participation four out of five years between 1995-1999, is the least inclusive. While this is true for all participants in the charter fishery, it may be even more so for the 37 communities being considered for the set-aside. That is, these communities are being targeted for the set-aside primarily because they are relatively 'underdeveloped' with respect to having mature charter businesses. Thus, qualification criteria based on measures of historical participation in the fishery have the potential to allocate fewer quota shares to individuals in communities that are in the early phases of developing charter operations.

Table 4.10 shows the estimated amount of halibut (in pounds) that may be allocated to individuals in targeted communities in Area 2C under Options 1 and 2 for the qualification criteria. Halibut harvests for 1998 and 1999 are attributed to each community if an individual indicated the community as the place of *residence* or the *home port* for the vessel. This differs from the amount of halibut harvests attributed to each community based on where the vessel *landed* as shown in Table 3.61. *Landings* in a community were used as a measure of the community's participation in the fishery since the community is more likely to receive direct benefits from charter businesses that operate out of that community. In terms of estimating how much quota may be allocated to residents of each community, *residence* or *home port* of initial issue is a better measure. In most cases, there is little difference in the amount of halibut harvest attributed to a community when place of *landing* is used versus when *residence* or *home port* is used. There are a few cases when the differences between the two methods are significant. For example, when community harvest is based on port of landing, the 1998 harvest for Angoon was 664 fish. When, however, harvest is based on residence or home port, the 1998 harvest for Angoon was 1,158 fish. Thus, it appears that in 1998, some vessels owned by residents of Angoon or home ported in Angoon operated part of the time from another port.

For target communities in Area 2C, the 1998 and 1999 harvests were 15,781 and 17,185 fish, respectively, representing 24.4% and 26.3% of the Area 2C charter harvests. Under Option 1, the amounts of the 1998

and 1999 harvests that would be counted are 12,835 and 15,259 fish, respectively. This represents 21.2% and 26% of the 1998 and 1999 Area 2C harvests counted under this option or an average of 23.6%. This average is multiplied by a factor of 70% based on the formula for distributing QS described under Issue 4, Option 1, reducing the communities' share of the initial allocation to 16.5%. Since it is not possible to determine whether qualifying community members would meet the longevity requirement, this represents the minimum allocation to Area 2C target communities under this option. Since some qualifying residents may be awarded additional QS based on longevity and since the balance would be distributed to all qualifying participants, the actual allocation to Area 2C communities could be higher. Finally, each community's allocation is converted into pounds of halibut based on the estimated charter sector allocation of 1,283,083 pounds for Area 2C (Issue 1, Option 1). Based on these calculations, QS representing an estimated 211,776 pounds or more would be initially allocated to target communities in Area 2C.

Similarly, under Issue 3, Option 2 (1998 or 1999 logbook data), the amounts of the 1998 and 1999 harvests that would be counted are 15,117 and 16,684 fish, respectively. This represents 23.4% and 26% of the 1998 and 1999 Area 2C harvests counted under this option or an average of 24.7%. This average is reduced to 17.3% after multiplying by the 70% factor and is equivalent to 221,892 pounds of halibut (using the Issue 1, Option 1 Area 2C charter sector allocation of 1,283,083 pounds)**. As anticipated, communities are estimated to receive more QS under the Option 2 qualification criteria than under Option 1 (221,892 versus 211,776 pounds or more).**

Table 4.10 Estimated Initial Allocation of Halibut (in pounds) to Individuals in Communities in Area 2C for Issue 3, Options 1 and 2.

Area 2C	Total Harvest (# of fish)		Option 1 (# of fish)						Option 2 (# of fish)					
	1998	1999	1998	1999	Avg	% of 2C	x 70%	2C lbs*	1998	1999	Avg	% of 2C	x 70%	2C lbs*
Angoon	1,158	1,598	1,146	1,418	1,282	2.2%	1.5%	19,328	1,158	1,598	1,378	2.1%	1.5%	19,230
Coffman Cove	299	482	299	472	386	0.6%	0.5%	5,812	299	482	391	0.6%	0.4%	5,449
Craig	6,302	7,496	5,575	7,111	6,343	10.6%	7.5%	95,628	6,302	7,496	6,899	10.7%	7.5%	96,276
Edna Bay	-	-	-	-	-			-	-	-	-			-
Elfin Cove	1,870	1,714	720	1,018	869	1.5%	1.0%	13,101	1,206	1,213	1,210	1.9%	1.3%	16,879
Gustavus	1,912	1,773	1,083	1,206	1,145	1.9%	1.3%	17,255	1,912	1,773	1,843	2.9%	2.0%	25,712
Hollis	-	-	-	-	-			-	-	-	-			-
Hoonah	581	642	572	642	607	1.0%	0.7%	9,151	581	642	612	1.0%	0.7%	8,533
Hydaburg	-	5	-	-	-			-	-	5	3	0.0%	0.0%	35
Hyder	-	-	-	-	-			-	-	-	-			-
Kake	227	45	227	45	136	0.2%	0.2%	2,050	227	45	136	0.2%	0.1%	1,898
Kassan	-	-	-	-	-			-	-	-	-			-
Klawock	1,426	1,450	1,350	1,450	1,400	2.3%	1.6%	21,107	1,426	1,450	1,438	2.2%	1.6%	20,067
Metlakatla	-	5	-	5	3	0.0%	0.0%	38	-	5	3	0.0%	0.0%	35
Meyers Chuck	-	-	-	-	-			-	-	-	-			-
Pelican	139	52	17	38	28	0.0%	0.0%	415	139	52	96	0.1%	0.1%	1,333
Point Baker	47	74	47	74	61	0.1%	0.1%	912	47	74	61	0.1%	0.1%	844
Port Alexander	97	380	97	363	230	0.4%	0.3%	3,468	97	380	239	0.4%	0.3%	3,328
Port Protection	-	-	-	-	-			-	-	-	-			-
Tenakee Springs	74	56	74	56	65	0.1%	0.1%	980	74	56	65	0.1%	0.1%	907
Thorne Bay	281	256	281	256	269	0.5%	0.3%	4,048	281	256	269	0.4%	0.3%	3,747
Whale Pass	279	233	279	186	233	0.4%	0.3%	3,505	279	233	256	0.4%	0.3%	3,572
Wrangell	1,089	924	1,068	919	994	1.7%	1.2%	14,978	1,089	924	1,007	1.6%	1.1%	14,046
Subtotal	15,781	17,185	12,835	15,259				211,776	15,117	16,684				221,892
% of Total	24.4%	26.3%	21.2%	26.0%		23.6%	16.5%	16.5%	23.4%	26.0%		24.7%	17.3%	17.3%

*Based on Area 2C charter sector allocation of 13.05% (Issue 1, Option 1) or 1,283,083 pounds.

Table 4.11 shows the estimated amount of halibut (in pounds) that may be allocated to individuals in targeted communities in Area 3A under Issue 3, Options 1 and 2 for the qualification criteria. As was done for the Area 2C calculations, halibut harvests in 1998 and 1999 are attributed to each community based on *residence* or *home port* and not on port of *landing*. This mainly affects the harvest attributed to Larsen Bay. When port of landing is used, Larsen Bay's harvest in 1998 and 1999 is 1,797 and 985 fish, respectively. When residence or home port is used, Larsen Bay's harvest in 1998 and 1999 is 746 and 451 fish, respectively. This indicates that more than half of the harvest landed in Larsen Bay is by vessels either home ported or owned by individuals living elsewhere.

For target communities in Area 3A, the 1998 and 1999 harvests were 6,241 and 5,001 fish, respectively, representing 3.9% and 3.0% of the Area 3A charter harvests. Under Option 1 (1998 and 1999 logbook data), the amounts of the 1998 and 1999 harvests that would be counted are 5,388 and 4,724 fish, respectively, representing 3.6% and 3.4% of the 1998 and 1999 Area 3A harvests counted under this option or an average of 3.5%. This average is reduce to 2.4% after multiplying by the 70% factor and is equivalent to 85,048 pounds of halibut (using the Issue 1, Option 1, Area 3A charter sector allocation of 3,477,551 pounds). Similarly, under Option 2 (1998 or 1999 logbook data), the amounts of the 1998 and 1999 harvests that would be counted are 6,241 and 5,001 fish, respectively. This represents 3.9% and 3.2% of the 1998 and 1999 Area 2C harvests counted under this option or an average of 3.5%. This average is reduced to 2.5% after multiplying by the 70% factor and is equivalent to 86,086 pounds of halibut.

As was the case for Area 2C, target communities in Area 3A would potentially receive more QS under Option 2 than under Option 1 although the difference is small. This is because the target communities in 3A that indicated any charter harvest at all reported harvests for both 1998 and 1999 and, thus, are less impacted by the more stringent Option 1 criteria (requiring logbook data for 1998 and 1999).

Another approach to quantifying the difference between Issue 3, Options 1 and 2 for the target communities is to calculate the potential number of qualifying individuals under each option. This is shown in Table 4.12. The number of qualifying individuals (and vessels) under Options 1 and 2 are shown for Areas 2C and 3A for 'All' qualifying individuals and just for those residing in the target communities. For Area 2C target communities, the number of qualifying individuals under Options 1 and 2 are 84 and 139, respectively. Thus, 65.5% more individuals qualify under Option 2 versus Option 1 (i.e., the ratio of owners under Option 2 versus Option 1 is 1.655). By comparison, when 'All' qualifying individuals are considered, the difference between Option 2 and Option 1 is 67.4%. Thus, the difference between the options is somewhat smaller for the communities than for Area 2C overall although Option 2 is clearly more inclusive for everyone. Similarly, for the Area 3A communities, the estimated numbers of qualifying individuals under Options 1 and 2 are 21 and 36, respectively. The difference between the two options is 71.4% for the communities, which is only slightly higher than the overall difference of 70.6%. Again, Option 2 is more inclusive than Option 1. These calculations indicate that difference between Options 1 and 2 are similar for the communities in comparison to the overall differences for Areas 2C and 3A, based on the number of qualifying individuals (but not necessarily in terms of amount of QS awarded).

Table 4.11 Estimated Initial Allocation of Halibut (in pounds) to Individuals in Communities in Area 3A for Issue 3, Options 1 and 2

Area 3A	Total Harvest (# of fish)		Option 1 (# of fish)						Option 2 (# of fish)					
	1998	1999	1998	1999	Avg	% of 3A	x 70%	3A lbs	1998	1999	Avg	% of 3A	x 70%	3A lbs
Akhiok														
Chenega														
Halibut Cove														
Karluk														
Larsen Bay	746	451	591	294	443	0.3%	0.2%	7,443	746	451	599	0.4%	0.3%	9,166
Nanwalek														
Old Harbor	7	173	7	103	55	0.0%	0.0%	925	7	173	90	0.1%	0.0%	1,378
Ouzinkie	12	-							12	-	6	0.0%	0.0%	92
Port Graham														
Port Lions	370	332	370	284	327	0.2%	0.2%	5,501	370	332	351	0.2%	0.2%	5,376
Seldovia	1,403	1,289	1,403	1,287	1,345	0.9%	0.7%	22,625	1,403	1,289	1,346	0.8%	0.6%	20,614
Tatitlek														
Tyonek														
Yakutat	3,703	2,756	3,017	2,756	2,887	2.0%	1.4%	48,555	3,703	2,756	3,230	2.0%	1.4%	49,460
Subtotal	6,241	5,001	5,388	4,724				85,048	6,241	5,001				86,086
% of Total	3.9%	3.0%	3.6%	3.4%		3.5%	2.4%	2.4%	3.9%	3.2%		3.5%	2.5%	2.5%

*Based on Area 3A charter sector allocation of 14.11% (Issue 1, Option 1) or 3,477,551 pounds.

In summary, the more inclusive the qualification criteria, the more individuals in the 37 target communities who participated in the halibut charter fishery in 1998 and/or 1999 are likely to qualify for an initial allocation of quota shares. Of the options under Issue 3, Option 2 is likely most inclusive while Option 4 is potentially least inclusive. Between Options 1 and 2, individuals in target communities are likely to receive more QS under Option 2. For target communities in Area 2C, an estimated 66% fewer individuals would qualify under Option 1 (compared to Option 2) and for target communities in Area 3A, an estimated 71% few individuals would qualify under Option 1. Similar percentage differences between Options 1 and 2, however, occur for each area overall.

Table 4.12 Estimated Ratio of Owners Under Issue 3, Option 2 versus Option 1 for All Participants and for Communities in Areas 2C and 3A.

	Area 2C				Area 3A			
	All		Communities		All		Communities	
	Owners	Vessels	Owners	Vessels	Owners	Vessels	Owners	Vessels
Option 1	322	544	84	264	333	444	21	57
Option 2	539	765	139	333	568	674	36	74
Ratio 2:1	1.674		1.655		1.706		1.714	

Option 1: Submitted logbooks in 1998 and 1999
Option 2: Submitted logbooks in 1998 or 1999

Issue 4: Amount of QS Distributed

The options for the formula to be used to calculate the initial distribution of QS among qualified individuals were presented under Section 4.2.4. Two options are being considered. Under Issue 4, Option 1, qualifying individuals would receive 70% of their proportion of the 1998 and 1999 logbook average plus an additional 10% for each year of operation during 1995-97 (longevity reward). The balance could then be re-issued to the whole group of participants (equally, proportionally or some combination). Under Option 2, the modified Kodiak proposal, qualifying individuals would receive 33% of their proportion of the 1998 and 1999 logbook average (Part B), plus a range of 5-30% that would be equally distributed (Part A), plus the balance (37-62%) based on their relative participation during 1995-99. (See Section 4.2.4 for a more complete description of the options under this issue.)

The two options under Issue 4 place varying degrees of emphasis on an individual's ADF&G logbook records, years of operation (longevity) and a portion that is distributed across the pool of qualifying individuals (equally or proportionally). The magnitude of this portion under Issue 4, Option 1 depends on the extent that qualifying individuals meet the longevity requirement. The size of this portion under Option 2 is a value chosen by the Council within a 5-30% range. The implications of these two options for the 37 communities are discussed qualitatively next.

Under Issue 4, Option 1, the more issuees residing in target communities that meet the longevity requirement, the closer the proportion of QS awarded is likely to reflect their market share based on their average 1998 and 1999 logbook harvests. At the extreme, if no issuees in target communities meet the longevity requirement, the target communities would receive only 70% of their share (based on the pool of qualifying individuals and not including any additional QS received as a result of redistribution of the balance). At the other extreme, if all issuees in target communities meet the longevity requirement, they would receive 100% of their share plus any additional amount from the redistribution of the balance. The magnitude of the balance depends largely on whether longevity was also included in the qualification criteria. That is, if the qualification

criteria under Issue 3, Options 4 or 5 are chosen, which require evidence of operation four out of five years for 1995-99, the balance is likely to be small since individuals lacking such documentation would be excluded from the pool of initial recipients. On the other hand, the balance may be quite large if Issue 3, Options 1 or 2 are chosen, since more individuals may qualify to receive QS who cannot meet the longevity requirement.

The relevant question here is under what scenarios might issuees in the 37 target communities fair worse than issuees in other communities in the same IPHC area? The likely situation where target communities may fair worse is when the proportion of issuees that cannot meet the longevity requirement is higher among potential issuees in the target communities compared to other communities. No data exists to determine the extent that this occurs. It is possible, however, given the fact that communities are being targeted by the set-aside because they are relatively 'underdeveloped' with respect to charter industry participation, that potential issuees in target communities have fewer years of operation compared to individuals running charter operations from a major port (Homer, Ketchikan, Juneau, etc.). If this were true, it is possible that issuees in target communities could be more impacted by the longevity requirement than issuees in other communities.

Similar arguments can be made regarding the potential impact of Issue 4, Option 2, the modified Kodiak proposal for distributing QS among initial recipients. Distributions under Option 2 are calculated in three parts: A, B and C. Under Part B of this option, issuees would receive 33% of their share of the average 1998 and 1999 logbook average. Under Part A, 5-30% of the allocation would be equally divided among all participants (the Council may select any value within the 5-30% range). The balance (Part C) which ranges from 37% to 62%, is distributed using a point system that awards issuees one point per year of operation during 1995-'99. Illustrative examples of how this method of distribution would work were described in Section 4.2.4. The examples can be used to determine the relative advantages of each option for issuees with low/high logbook harvests and with low/high longevity. These comparisons are summarized qualitatively in Table 4.13.

Table 4.13 Distribution Method (Issue 4, Options 1 or 2, Part A = 5% or 30%) Favorable to Issuees Based on Logbook Harvest and Longevity

	Longevity	
Logbook Harvest	**Low**	**High**
Low	Option 2 w/ A=30%	Option 2 w/ A=5%
High	Option 1 or Option 2 w/ A=30%	Option 1 or Option 2 w/ A=5%

Thus, issuees with low logbook harvests would receive a more favorable allocation under Option 2 since less emphasis is placed on the logbook harvest in the calculation. Issuees with relatively few years of operation would receive a more favorable allocation if Part A of Option 2 (which determines the amount that is equally distributed among all issuees) is set at a high level (e.g., A = 30%). Issuees with relatively high logbook harvests and high longevity, would receive a more favorable allocation under Option 1, or under Option 2 with Part A set at a low level (e.g., A = 5%).

Thus, the implication of Issue 4 for potential issuees in the 37 target communities depends on (1) their share of the 1998 and 1999 logbook harvest, and (2) the proportion that qualify for the longevity award. If the potential issuees in the 37 communities have relatively *low logbook* harvests and *few years* of operation (compared to potential issuees in other communities), they would likely receive a more favorable allocation under Option 2 with Part A set at a high level.

In summary, insufficient data at the community level is available to quantitatively examine under which options the 37 target communities would most benefit. If members of target communities on average have low logbook harvests and few years of operation, a method of distribution that places less emphasis on logbook history and longevity may ensure that residents of target communities receive an amount of QS that is more reflective of their historical market share. Public testimony may guide the Council on this issue.

4.2.11.1.2 Issues 5-7: Implications of Transferability for Target Communities

Issues 5-7 consider options for transferability of halibut charter QS. These issues are analyzed for the overall charter IFQ program in Sections 4.2.5-4.2.7. Of relevance here is whether any of these transferability issues have an incremental impact on the 37 target communities. In general, retention and acquisition of halibut charter QS would be facilitated by (1) restrictions that prevent individuals from transferring QS permanently out of the communities and (2) provisions that would make it easier for communities to acquire QS. Comments on Issues 5-7 specific to the 37 communities are provided in this section.

As a backdrop to this issue, it may be relevant to consider how transfers of commercial QS have impacted the 37 communities since the time of initial issuance. For the commercial sablefish and halibut IFQ programs, net reductions of QS holdings among residents of the 37 target communities have occurred (see Tables 3.57 and 3.58). The net losses are a result of a combination of net transfers of QS units and migration of QS holders out of the 37 communities. As of year-end 1998, holdings by residents of the 37 communities of commercial halibut QS units for Area 2C represented 19.1% of the total QS units for the area, down from 21.8% at the time of initial issuance. Similarly, individuals in the 37 target communities held 4.1% of the QS units for Area 3A, down from 4.7% at initial issuance. The 37 communities also experienced a net loss in commercial sablefish QS holdings among residents for all management areas except the Central Gulf between initial issuance and year-end 1998. Holdings of sablefish QS units for the Central Gulf increased, however, along with the percentage held by the 37 communities (although 97% of the sablefish QS units held by residents of the 37 communities are held by residents in Seldovia and Pelican).

Issue 5: Transferability of QS

Six options for transferability are under consideration specifying whether charter QS are leasable, transferable between the charter and commercial sectors, blocked, subject to vessel class restrictions, and have limits on the frequency and size of transfers. Overall, these options do not have specific implications for the 37 communities. Of note is the absence of any restrictions on transfers from individuals in specific communities to recipients outside of the communities. For example, restrictions on the frequency or amount that may be transferred out of specific communities could help the retention of QS in such communities. This may also, however, diminish the transfer value of such shares since freely transferable QS would likely command a higher transfer price than QS with restrictions. This result would represent a two-edged sword. On the one hand, depressed QS prices may make it easier for another member in the community to acquire the shares, facilitating the retention of the shares in the community. On the other hand, depressed QS prices may reduce the value of such QS as collateral that could disadvantage initial QS recipients in the 37 communities relative to initial recipients outside of the communities.

Issue 6: To Whom May QS be Transferred

For the charter sector (Option 1), individuals must be either (A) an initial issuee, or (B) qualified as defined by State of Alaska requirements for registered guides or businesses. In addition, a suboption to require the recipient to hold a USCG license is under consideration. Of these options for the charter sector, the potential requirement for a USCG license may be overly restrictive from the perspective of the 37 communities. To

obtain a USCG license, an applicant must have a certain amount of boating experience and pass a written examination on navigation, safety, etc. It is reasonable to assume that individuals living in the 37 communities have boating experience, given the location and coastal nature of the communities under consideration. Since the license requires a written exam and some preparation for the exam (prep-course, etc.), requiring transfer recipients to hold a USCG license may delay (but not necessarily preclude) their participation in the charter fishery. For example, it is conceivable that some individuals in the 37 communities would want to purchase QS to start a charter business and rely on a hired skipper in the first few years.

Finally, it should be noted that transfers directly to communities (as opposed to individuals residing in the communities) is not under consideration at this time.

Issue 7: Caps

Two options are being considered for caps: (1) no caps, and (2) ownership caps of 1/4, ½ and 1% of combined QS for each area (including a grandfather provision for initial issues). To the extent that caps limit consolidation of QS among participants, concentration of economic power would also be limited. This may help to keep QS prices down (by promoting availability) and ensure a healthy level of competition in the industry. Both results would benefit smaller charter operators based in the 37 target communities.

4.2.11.2 Option 2. Set Aside 0.5-2.5% of Combined Commercial/Charter TAC for Gulf Communities

Under this option, halibut charter quota would be set aside for use by certain Gulf of Alaska communities for purposes of developing community-based halibut charter businesses. While the details of the community program including qualification criteria, eligible communities and administration will not be considered until the trailing amendment pending Council adoption of the set-aside, the Council specified at the December 2000 meeting several core features of the program for purposes of analysis. These core features include the following: (1) set-aside quota are granted to qualifying individuals in eligible communities on a limited right-of-use basis and cannot be sold or leased; (2) set-aside quota are allocated to qualifying individuals on an annual basis subject to individual and community caps; (3) communities, on behalf of qualifying community members, must request an allocation of set-aside quota each year and any quota uncommitted by a certain date is rolled back to the general commercial/charter quota pool for the upcoming season; and (4) set-aside quota are intended to be used for purposes of starting or developing charter businesses by the individual receiving the allocation. Based on these core features, **the analysis assumes that any set-aside quota allocated to qualifying individuals in eligible communities is not transferable, is intended for use to operate a charter business, and cannot be used by the individual in the commercial fishery**. In addition to these core features, the Council also requested that a phase-in approach be considered in addition to the preseason roll-back proposed by the Coalition and that sunset provisions of 5 or 10 years be included in the analysis.

As outlined in the problem statement for this issue, one of the main purposes of the community set-aside is to reduce an economic barrier to entry into the charter industry for Gulf communities with relatively underdeveloped charter businesses. Other important purposes of the set-aside include (1) provide for sustained participation of Gulf communities in the charter fishery, (2) provide for expanded economic opportunities, and (3) reduce the potential for localized depletion and increase geographical diversity of the charter trip experience. As discussed under Option 1 for this issue, if no halibut charter quota are set aside for the target Gulf communities, development of community-based charter operations may be hindered by the fact that (1) community members may receive relatively few halibut quota shares in the initial allocation depending on the choice of qualification criteria and formula for calculating the size of the distribution, and (2) the charter IFQ program creates a new economic barrier to entry into the charter industry that does not

now exist. Since access to the halibut resource has not been a limiting factor in the past, the community set aside may serve to preserve existing opportunities and reduce the extent that the target Gulf communities are shut out of the charter industry. In addition, the set-aside may help to mitigate some of the distributional effects of the charter IFQ program, as well as the social implications associated with transferability and the windfall profit bestowed upon initial recipients of the halibut charter QS.

This section is organized into seven subsections. Section 4.2.11.2.1 discusses provides an overview of the net benefit and distributional effects of the community set-aside. Section 4.2.11.2.2 discusses the net-benefit implications of set-aside quota remaining unharvested and the two proposed mechanisms for addressing this issue, the roll-back mechanism proposed by the Coalition and the phase-in approach. Section 4.2.11.2.3 discusses other changes in charter industry structure and/or costs that may result from the community set-aside. This section includes a discussion of the potential removal of the economic barrier to entry and potential administrative costs. Section 4.2.11.2.4 provides analysis of suboption 1, the source and magnitude of the set-aside, including the impact to the charter and/or commercial sectors (depending or the source of the set-aside) and implications for the 37 target communities. Section 4.2.11.2.5 discusses various sunset provisions (suboption 2) and other long-run effects of the set-aside. Section 4.2.11.2.6 provides a break-even analysis of charter businesses operating in Areas 2C and 3A. Finally, Section 4.2.11.2.7 discusses potential impacts of the community set-aside on halibut quota-share values for the commercial and charter sectors.

4.2.11.2.1 Overview of Net Benefit and Distributional Impacts

Extension of the commercial halibut IFQ system to the halibut charter sector has the potential to allow for a more optimal allocation of the resource. A pronouncement of "optimality," however, involves a difficult assessment of the tradeoffs involved between relatively easy-to-measure monetary impacts on the various stakeholders involved and the more-difficult-to-quantify distributional issues. The difficulty, yet necessity, of trying to compare what are often incomparable forms of benefits and costs is emphasized in E.O. 12866. While such distributional issues such as equity are frequently dismissed as 'transfers' within the net benefit context, regional social and economic ramifications can be substantial and may warrant mitigation at the expense of more easily measured monetary benefits. In addition, extension of the halibut IFQ system to the halibut charter sector creates a new economic barrier to entry into the charter sector that does not currently exist. This creation of an economic barrier occurs by virtue of the initial allocation of quota shares (QS) necessarily excluding certain stakeholders and the fact that, post allocation, QS have economic value and any new entrant into the industry would have to purchase QS (or lease IFQ) from an existing holder. The proposed community set-aside, one option for addressing possible distributional inequities and barriers to entry, may result in reduced direct economic benefits. The potential reduction in net economic benefits, however, does not in itself suggest that the community set-aside option should be rejected since the Council may consider such a reduction is more than compensated for by other forms of benefits (e.g., opportunities being offered to/preserved for targeted communities). In essence, the Council is faced with a question regarding the scope of "benefits" and "costs" to be considered in evaluating the suite of options that have been proposed. Some forms of benefits and costs are clearly easier to measure than others and, ultimately, the Council will have to decide how to integrate the quantitative information presented in the analysis with the more immeasurable benefits and costs that may be judged to flow from particular options under consideration. From a narrow view of economic benefits, a community set-aside could result in a reduction in net economic benefits for at least two reasons. First, if any of the set-aside quota remain unharvested, the quantity of product (trips for the charter sector or fish for the commercial sector) produced and consumed would be reduced, resulting in decreases in both the consumer and producer surpluses. Secondly, a community set-aside specifically 'ear-marked' for small, rural, Gulf coastal communities could increase costs in aggregate by potentially (a) shifting some production to charter operators with higher marginal costs (e.g., lack of infrastructure), (b) increasing costs for existing charter operators that need to purchase or lease more quota

shares to support their normal level of activity, (c) increasing costs to consumers of charter services because of the remote location of certain communities, and (d) increasing administrative costs. Higher charter operator costs would decrease the producer surplus, while higher transportation costs could decrease the amount customers would be willing to pay for charter services, thereby decreasing both consumer and producer surpluses. In addition, changes in the quality of the charter trip experience could change net economic benefits although the direction and magnitude of the change would be difficult to predict since it would require an understanding of consumer preferences. For example, some consumers may view the availability of charter trips from a more remote community as an enhancement since it offers a more geographically diverse experience (less crowded, higher potential catch rates, etc.), while others may view it as an inconvenience (financial and/or time).

While analysis of the details of the community program has been deferred and is contingent on the Council's decision in April, certain features of the community program have a direct bearing on the net benefit analysis of the set-aside option, and therefore bear on the first order decision of whether to adopt a set-aside. For example, certain design features of the community program such as an effective 'roll-back' mechanism could minimize the potential for unharvested community quota, thereby minimizing any expected reduction in net economic benefits from this source. If the community program fails to provide an effective mechanism for fully utilizing set-aside quota, a reduction in net economic benefits would likely occur. Therefore, certain net benefit implications of this issue depend on whether the community program is effectively designed to minimize the occurrence of unharvested community quota. Based on clarification provided by the Council during the December meeting, this analysis considers mechanisms proposed by the Coalition for ensuring set-aside quota are fully utilized, including a pre-season roll-back of uncommitted quota and certain limits and penalties on individual participants. Also, as directed by the Council, the analysis considers a phase-in of the community set-aside.

With respect to the potential reduction in net economic benefits due to an increase in industry costs, staff considers it impractical to attempt to quantify the magnitude of the reduction due to lack of cost data for the charter industry and the fact that changes in cost (except for administrative costs) would be very difficult to predict. Instead, the analysis qualitatively addresses the economic implications and potential market distortions resulting from a community set-aside. Specifically, the set-aside is intended to remove an economic barrier to entry into the halibut charter industry for one particular user group (certain individuals in targeted Gulf communities) but may, in itself, place other new entrants at a competitive disadvantage. In so doing, the community set-aside may change costs for charter operators and consumers, resulting in a change (a likely reduction) in net economic benefits to society. These issues are discussed in more detail in Section 4.2.11.2.3.

Finally, the community set-aside would also result in distributional effects within the halibut charter and/or commercial sectors (depending on the source and magnitude of the set-aside). Namely, rents from harvesting halibut may be redistributed from the charter and/or commercial sectors to the communities, depending on the extent that communities utilize set-aside quota to develop charter operations. This redistribution, in turn, may have secondary effects on the regional economies. The impact of the community set-aside to user groups in the primary markets for the commercial and charter sectors will be quantified in section 4.2.11.2.4 of this analysis. The impact to community members that receive set-aside quota versus those not eligible to receive set-aside quota will also be discussed with respect to any competitive advantages or disadvantages resulting from the community set-aside. Analysis of any secondary effects on regional economies, however, will be deferred to the detailed analysis of the community program, if adopted by the Council.

4.2.11.2.2 Implications of Set-Aside Quota Remaining Unharvested

If portions of the set-aside quota remain unharvested, the quantity of product (fish for the commercial sector or charter trips for the charter sector, depending on source of set-aside quota) produced and consumed is effectively reduced. This would reduce both consumer and producer surpluses and reduce net economic benefits to society as a result of the lost opportunity represented by the unused resource. The Coalition proposal acknowledges the importance of set-aside quota being fully harvested and incorporated several features to address this issue, including (1) a pre-season roll-back of uncommitted set-aside quota to the general commercial and/or charter allocation pool, (2) a provision that set-aside quota are available for community use but ownership is retained by the government, and (3) individual caps, penalties and limits imposed on qualifying individuals (from qualifying communities) to encourage full utilization of allocated quota. This section provides a qualitative assessment of the approach proposed by the Coalition although the impact on net economic benefits depends ultimately on its effectiveness in practice. The implications of phasing in the set-aside quota are also addressed.

Coalition Proposal

In the Coalition proposal, quota are set aside on an annual basis for community use but full ownership privileges are *not* granted to communities (individual community members or community management entities). The set-aside grants communities with a 'limited right of use on a seasonal basis' but does not constitute a lienable interest that can be leased, transferred or used as collateral. The Coalition proposal would require eligible communities to create or identify an entity to manage the community fishing quota for use by qualified individual community members. The proposal identifies non-profit, economic development, or fishermen's organizations as probable management options. Qualified individuals would apply to the management entity for a portion of the community set-aside quota on an annual basis, and the management entity may subsequently submit a transfer request to NMFS for the appropriate amount of quota (subject to a community cap). The proposal recommends a deadline for individual application of community quota shares, so that any portion of the set-aside that is not committed to communities *before* the halibut season starts can be rolled into the general allocation pool for distribution to the commercial and/or charter halibut sectors (depending on the source of the set-aside). This "pre-season" roll-back should be distinguished from an "in-season" roll-back; the Coalition proposal does *not* provide a mechanism for reallocating *committed, but unused* quota share back to the commercial and charter sectors later in the season if the community quota shares are left unharvested. Both types of roll-backs are important to the net-benefit implications of a community set-aside.

Discussions with the RAM Division indicate that the pre-season roll-back is administratively feasible as long as individuals and communities apply for the set-aside quota sufficiently in advance of the annual calculations for the commercial/charter halibut IFQs. This would allow the uncommitted quota to be included in the commercial/charter halibut IFQ calculations at the beginning of the season, incorporating only a slight element of uncertainty into charter businesses that are dependent on client bookings in advance. On the other hand, while the details and feasibility of administering an in-season roll-over have not been fleshed out, staff discussions with the RAM Division indicate that an in-season roll-over would likely be administratively *infeasible* and would negate one of the original goals of the IFQ program, that is to instill certainty in the amount of quota allocated to individual halibut fishermen (Phil Smith, pers comm, 11/17/00). Based on this information, this analysis excludes further consideration of the in-season roll-back concept.

The Coalition proposal also includes limits and penalties on qualifying individuals designed to encourage full utilization of allocated community quota. This feature of the Coalition proposal was described in public testimony during the October 2000 meeting as follows:

> "As proposed, qualifying individuals ... would initially be entitled to no more than 2,000 lbs of halibut charter IFQ's each (approximately 91 fish). Additional halibut can be requested in subsequent seasons when the full initial entitlement is used. However, increases are limited to 2,000# annual increments with a maximum individual cap of 10,000# – inclusive of any halibut charter IFQs owned by the individual. Further, if more than 10% of the requested quota is not utilized, the unused portion will be deducted from subsequent allocations."

When considered together, these core features of the Coalition proposal, in theory, provide a conceptual mechanism for minimizing the potential for set-aside quota remaining unharvested that, in turn, would also minimize the potential reduction in net economic benefits due to unharvested quota. That is, the amount of set-aside quota allocated annually to each qualifying community depends on the amount requested by qualifying individuals within each community (subject to a community cap). Qualifying individuals, in turn, face limits on the amount of quota they are eligible to receive the first year, limits on the size of subsequent annual increments (up to the individual cap), and, if more than 10% of any individual's requested amount is not utilized, the unused portion is deducted from subsequent allocations. Finally, set-aside quota that is unobligated by a certain date is returned to the general allocation pool for purposes of the IFQ calculation for the upcoming season. While the Coalition proposal does not include an in-season roll-back to allow unharvested community quota to be harvested by other communities or sectors, it provides a disincentive for qualifying individuals to request more quota than will be used. This disincentive (i.e., unused portions are deducted from subsequent allocations, if more than 10% of individual's requested allocation) would *not*, however, eliminate the potential for committed quota remaining unharvested in the year of the allocation.

Thus, the potential reduction in net economic benefits due to unharvested community quota ultimately depends on the effectiveness of the program in practice. In particular, it is important (1) for the annual portion of set-aside quota requested by each community to accurately reflect the amount qualifying individuals in the community will fully utilize, and (2) for uncommitted set-aside quota to be rolled back into the general allocation pool for inclusion in the IFQ calculations for the upcoming season. As discussed earlier, the RAM Division has indicated that the pre-season roll-back of uncommitted quota would be administratively feasible. Thus, the effectiveness of the program largely depends on the ability of each community (via an appropriate management entity) to identify qualified individuals within the community, monitor utilization, and implement the provision that unused portions (if more than 10% of the requested allocation) be deducted from the respective individual's subsequent allocation. In addition, in-season monitoring and enforcement of community charter operators would also be required but could likely be addressed using whatever approach is used for the overall charter IFQ program.

While the details of how the community program will be administered will be considered more fully in the trailing amendment (should the Council adopt the set-aside), it is clear that the effectiveness of the proposed measures to minimize the potential for unharvested quota depends on the program's administrative feasibility. Regardless of how the program is administered, the community set-aside would increase administrative costs which, in turn, represent a reduction in net economic benefits even if partially financed from profits earned by community charter operators.

Finally, it should be noted that the community set-aside as proposed by the Coalition is structurally distinct from the existing CDQ program with respect to its core features. One of the more significant differences pertains to the concept that set-aside quota are available for community <u>use</u> but ownership is retained by the government in trust for eligible communities. Thus, a community set-aside under the proposed program does not represent a long-term allocation (to the community management entity or qualified individual community members) of quota shares that can be transferred, leased or used to secure a loan. Without the ability to lease or transfer quota shares, qualified individuals that receive set-aside quota are required to utilize the resource

themselves. Importantly, one of the main goals of the program as proposed by the Coalition is to reduce an economic barrier to entry to allow underdeveloped communities to develop charter operations. This is in direct contrast to the current CDQ program that grants certain ownership privileges to the CDQ group holding CDQ shares; the group can decide to harvest the quota or lease the quota to another group or sector (e.g., commercial harvesters) that could harvest the quota. The ability of CDQ groups to lease their quota shares to commercial harvesters serves as an important mechanism for minimizing any net loss to the fishery represented by "unharvested" quota. In addition, leasing of quota shares by CDQ groups provides an important source of revenue for financing fishery-related community development programs.

By contrast, under the Coalition proposal, set-aside quota are intended for use by individual community members for starting and developing charter operations. The inability to lease or use set-aside quota as collateral has three important implications: (1) communities cannot use leasing as a mechanism for ensuring their allocated quota are fully harvested, (2) communities may have difficulty overcoming other significant economic barriers to entering the halibut charter business (i.e. purchase or lease of a vessel), and (3) communities would not likely be able to directly finance other fishery-related community development programs (although secondary effects associated with developing successful charter businesses would indirectly contribute to the economic development of the community).

Phase-In Approach

At the December 2000 meeting, the Council requested that a phase-in approach be considered in addition to the pre-season roll-back mechanism proposed by the Coalition. Under this approach, the full set-aside amount would be phased in gradually, starting with an amount more reflective of the estimated start-up needs for halibut by the target communities and incremented in steps up to the full set-aside allocation. The timing and magnitude of the step-ups could be made contingent on community demonstration of progress towards developing charter businesses and ability to utilize the resource.

There are several rationales for this approach. First, since set-aside quota is intended for use by individuals in communities that either lack or are in the early phases of developing charter businesses, relatively few individuals (and, therefore, communities) may qualify for set-aside quota in the first few years. Secondly, the start-up halibut resource requirements tend to be lower than resource needs of mature businesses since utilization of the resource requires development of a client-base. Third, the phase-in may allow more time for the remaining charter sector and/or commercial sector (depending on the source of the set-aside) to adjust to the community set-aside and the effective reduction in their respective halibut allocations. Finally, the phase-in may help to reduce uncertainty associated with the amount that each sector's TAC is reduced each year by the set-aside (depending on the source of the set-aside) and serve to stabilize quota share values. Stabilization of quota share values has been recognized as an important goal of any IFQ program since it enhances the long-term value of the quota shares and use as collateral for securing loans. This section discusses the net-benefit implications of the phase-in approach as well as other potential advantages of a phase in.

By itself, a phase-in is not likely to be as effective as the preseason roll-back in minimizing the potential that set-aside quota is incompletely utilized. Under the roll-back, any uncommitted set-aside quota is rolled back into the general allocation pool for the upcoming season. A phase-in would set aside some fraction of the full community allocation but the resulting amount of quota would not necessarily be tied to the amount qualifying community members request and expect to utilize. Consequently, the amount requested by communities (on behalf of qualifying members) may be less than the initial community set-aside allocation, potentially leaving some set-aside quota unallocated and therefore unharvested, especially if there is no mechanism for rolling back uncommitted quota to the general allocation pool. This problem could potentially be minimized (even

eliminated) if the initial allocation to the community set-aside is conservative relative to the potential amount requested by qualifying community members. Also, if subsequent step-ups are made contingent on community utilization of the prior year's allocation, the residual amount that is uncommitted each year may be small.

For example, suppose the Council decides to set aside a maximum of 1.5% of the combined commercial/charter TAC for target communities in Area 3A and decides to phase in the full set-aside starting with an initial community allocation of 0.75% with step-up increments of 0.25% per year. If in the first year, the amount requested by communities is only 0.5% of the combined Area 3A TAC, then the balance would remain unharvested resulting in a reduction in net economic benefits. If, on the other hand, the amount requested by communities in the first year is closer to 1.0% of the combined Area 3A TAC, the full amount of the first year's set-aside would likely be allocated. Thus, to the extent that the first year's allocation to the community set-aside matches or is less than the amount communities request, the less likely it is that quota set aside for communities would go unutilized.

The potential for set-aside quota that is not allocated to communities to go unused can be eliminated if the phase-in is implemented in conjunction with the roll-back mechanism. If implemented with the roll-back mechanism, the phase-in would serve instead to minimize the amount that may need to be rolled back each year. That is, if early on communities are likely to request smaller amounts of halibut (because few individuals qualify and because start-up businesses are likely to book fewer clients), then the phase-in may serve to more closely match the set-aside quota to the actual amount requested by communities. This, in turn, would help minimize uncertainty for the charter and/or commercial sectors (depending on source of set-aside) since the amount allocated to communities that year can be predicted with greater certainty. If the year's allocation to communities is more predictable, quota share values are likely to be more stable and businesses may be able to make better plans.

For example, suppose again that up to 1.5% of the combined TAC can be set aside for target communities in Area 3A and assume that the set-aside is phased in starting at 0.75% of the combined TAC. Then, the other sectors can make plans assuming that the year's allocation to communities will be close to 0.75% of the combined TAC after any uncommitted quota is rolled back. If the set-aside is not phased in, the other sectors would have to assume as much as 1.5% of the combined TAC could be allocated to communities that year even though half that amount may be rolled back before the season begins. The point here is that the amount rolled back each year may fluctuate quite a bit, especially in the early years of the program. Phasing in the full set-aside allocation may serve to minimize the amount (and fluctuations in the amount) that is rolled back each year, thereby decreasing uncertainty and stabilizing quota share values.

There are, however, some disadvantages of the phase-in approach. First, it may be difficult to determine an appropriate starting point for the set-aside since it depends on the potential number of qualifying individuals that are likely to make requests in the first year of the program. Secondly, the starting allocation for the phase-in may be set too conservatively, unnecessarily hampering community efforts to establish charter operations. Thirdly, the timing and magnitude of the step-ups may be overly restrictive, especially if community participants meet with early success in attracting clients. Given the financial stakes in starting a charter business, it would be better if participants were not overly constrained in the amount of halibut they can obtain from the program. In this sense, the phase-in may be too conservative and inflexible and unnecessarily hamper the efforts of the participants.

4.2.11.2.3 Potential Changes in Industry Structure and Costs

Even if halibut allocated to communities is fully utilized, the set-aside may reduce net economic benefits to society if the allocation to communities reduces the surplus to consumers or producers in another fashion. The

set-aside may reduce the producer surplus if charter operator costs across the industry rise. Increased costs may occur if community-based charter businesses are able to enter the industry even though their costs are higher relative to new entrants elsewhere and if existing businesses need to purchase QS or lease IFQs to satisfy their normal customer demand. The surplus to consumers may decline if the supply of charter services is reduced or the composition of available charter services changes by including more highly priced charter services based in communities targeted by the set-aside. These potential changes in net economic benefits result from the effective reallocation of halibut from the charter and/or commercial sectors to charter businesses based in the target communities.

In addition to the impacts of the reallocation, the removal of a barrier to entry may change the competitive structure of the charter industry. Namely, the barrier to entry (created by the charter IFQ program) is removed for qualifying individuals in certain communities but is not removed for other potential new entrants. This may give charter businesses that receive quota from the set-aside a competitive advantage versus other potential new entrants. Finally, there will be a cost associated with the administration of the community set-aside that represents a new cost to the industry that otherwise would not exist. Any increase in administrative costs would reduce net economic benefits to society. These issues are discussed in more detail in this section.

Implications of Reallocation of Halibut Quota to Target Communities

Three suboptions are under consideration for the source of the set-aside, including (a) equal pounds from the commercial and charter sectors, (b) proportional amount based on allocation split between the commercial and charter sectors, and (c) 100% out of the charter sector. The potential impacts of these suboptions are quantified in Section 4.2.11.2.4.

Even if the set-aside quota is fully utilized, the reallocation may result in a change in net economic benefits because of differences in the type of charter services offered in the small, remote Gulf communities versus major ports like Homer, Juneau, Ketchikan, etc. That is, charter services based in the target communities are potentially highly differentiated from charter services based in major ports and such community-based charter services likely appeal to a different clientele. For example, charter trips from Homer are consumed more by residents of Alaska who place relatively high importance on catching fish and tend to be less willing to spend the money or time to take a charter trip from a small community on Kodiak Island. By contrast, some non-residents may be willing to pay for a more unique experience that includes transportation to a more remote location, an overnight stay in a lodge, and a charter trip in a scenic place.

In this sense, it may be useful to treat the two types of charter-trip experiences as two different sectors of the charter industry: (1) the major-port charter sector, and (2) the remote-community charter sector. The major-port sector is characterized by a relatively homogeneous product and a market structure that is highly competitive and relatively mature. The remote-community sector is characterized by a highly differentiated product and a 'monopolistically competitive' market structure; the unique nature of the charter trip experience from remote communities allows them to be priced differently (i.e., higher) than charter trips based in major ports. Thus, the community set-aside may be treated as a reallocation of halibut quota from the major-port charter sector (and/or commercial fishing sector) to the remote-community sector.

Let's consider first the impact of this reallocation on the major-port charter and the commercial sectors, to the extent that set-aside is partially funded from both. The reduction in the halibut allocation to the major-port charter sector has the potential to require some charter businesses to purchase more halibut QS or lease additional IFQs to satisfy client demand. (It is possible, however, that a number of charter businesses will receive more than adequate amounts of QS in the initial allocation and would not need to purchase or lease

any quota.) Since halibut is an input to production in the charter sector, the need to purchase or lease additional quota increases costs for such charter businesses. If the charter sector market is highly competitive, prices are not likely to change in the short run. As a result, some charter businesses that now have higher costs may experience economic losses. At the margin, this may force some charter service providers out of business, reducing the supply for charter services in major ports. In other words, the supply curve for charter services in major ports shifts inward. As supply shifts inward, market prices rise until the market reaches a new equilibrium point, at a lower quantity and higher price. This inward shift of the supply curve reduces both consumer and producer surpluses. The potential magnitude of the reduction may be small, however, if the amount of QS received in the initial allocation is not constraining, even if the set-aside is fully funded from the charter sector. In addition, some operators may be able to target salmon (or another species) instead of halibut and avoid the need to purchase or lease additional QS. This may be more true, however, for charter operators in Area 2C than in Area 3A.

If a portion of the allocation is taken instead from the commercial sector, a similar reduction in supply would occur although the mechanism is different. For the commercial sector, a reduction in its allocation effectively reduces the sector's TAC, which in turn reduces the quantity of fish supplied. The reduction in the commercial sector's TAC, however, may also reduce commercial halibut QS values since each unit would represent a lower amount of fish in pounds. Such a reduction in QS values may adversely impact current QS holders in the commercial sector, some of whom may have purchased a large portion of the QS they now hold. The potential impact of the community set-aside on halibut QS values is discussed in Section 4.2.11.2.7.

Reductions in the supply of charter services in major ports may be partially or fully off set by an increase in supply of charter services in remote communities. For example, it is possible that the charter sector in remote communities is not yet a mature market but is still growing. That is, existing businesses may still be expanding and potential new charter businesses may be poised to enter the market. If so, it implies that economic profits are being made in the sector since, in a mature market, economic profits would be zero and no incentives would exist to attract new entrants (not accounting for some turnover where new entrants replace charter businesses that decide to leave the industry). Unlike the major-port sector, which experienced higher costs as a result of the set-aside, charter businesses in the remote-community sector would potentially experience no change in costs due to the set-aside. That is, the set-aside quota serves to eliminate in the short-run the need for charter businesses in eligible communities to purchase or lease additional quota. In this sense, the set-aside preserves the existing cost structure and helps to mitigate the impact of the charter IFQ program for members of eligible communities.

In the short-run (i.e., while the set-aside program is in place), the growth dynamics in the remote-community sector are likely to proceed in a manner similar to what would happen if the charter IFQ program is not implemented. To the extent that new charter businesses are poised to enter the industry because economic profits are being made, these businesses are more likely to proceed with their plans. Importantly, the set-aside is not likely to create new incentives to enter the industry. Instead, the set-aside helps to preserve the existing cost structure and, to the extent that economic profits are being made in the sector, the same incentives (and disincentives) continue to exist in the short run. Over time, as new charter businesses enter the remote-community sector (or existing businesses in these communities expand), supply increases and prices fall until no economic profits are being made in the sector. (Note that zero economic profits do not imply that businesses are not profitable since businesses are assumed to be earning normal returns on their investment.) Another way to view this phenomenon is that, given limited growth in demand, as more businesses enter the remote-community sector, the fixed number of clients are divided among more firms and each firm is faced with diminished demand. As demand for each firm's product declines, economic profits for these firms are reduced to zero. The sector would then be considered a mature market that is in equilibrium. The net result

of this process is that supply for charter services in the remote-community sector increases and prices fall, increasing both consumer and producer surpluses.

Thus, reductions in net economic benefits due to supply decreases in the major-port charter sector and/or commercial sector (depending on source of set-aside) may be partially off-set by increases in net economic benefits due to supply increases in the remote-community sector. Given the lack of homogeneity in the product offered across these sectors, it may not be appropriate to sum these effects to conclude that no change in net economic benefits has occurred. Furthermore, given the forced nature of the reallocation, it is not clear whether this reallocation of the halibut resource would occur naturally. That is, the community set-aside is not necessarily like an unrestricted transfer of quota that promotes movement of the resource to a more highly-valued use. The community set-aside may help preserve the existing cost structure of the remote-community charter sector in the short run, which the Council may consider a worthy cause for non-economic reasons. It should be noted, however, that whether or not the set-aside results in a net increase in the supply of charter services in remote communities depends largely on what stage of development the industry is currently in. If market demand is still growing and sufficient incentives exist to attract new entrants, supply of charter services in remote communities is likely to expand. If market demand is saturated, however, the set-aside alone is not likely to result in more charter services.

To the extent that the goals of the community set-aside are realized, other social and economic benefits may flow to the participating communities. Communities that are able to establish stable charter operations may experience growth in employment directly and indirectly tied to the charter operations. Expenditures in the community may enhance the overall economic well-being of the community. In addition, other social benefits may be realized that are difficult to quantify. Finally, charter businesses may provide opportunities for residents to gain business experience and training as fishing guides.

Removal of an Economic Barrier to Entry

An important goal of the community set-aside is to remove an economic barrier to entry into the charter sector for remote communities that are relatively underdeveloped. The economic barrier under consideration is the one created by implementation of the charter IFQ program. As discussed at the beginning of Section 4.2.11, the estimated magnitude of this new economic barrier ranges from $9,000 to $19,000 for start-up/part-time operators and $30,000 to $94,000 for full-time operators. The community set-aside may eliminate or reduce this cost for certain qualifying individuals in the target communities. By doing so, the existing cost structure for charter businesses operating in such remote communities may be preserved in the short run. This may allow the charter sector to continue to grow in a manner similar to how it would grow if the charter IFQ program is not implemented. Given that other significant barriers to entry exist for potential new entrants based in the 37 communities, including significant financial, individual and community infrastructure requirements, the set-aside is not likely to promote development of charter businesses that would not otherwise emerge. The set-aside may help to ensure that whatever development would take place without the charter IFQ program will still occur. In this sense, the set-aside helps to preserve existing opportunities as opposed to create new opportunities. If the set-aside is adopted, growth is likely to be limited by other factors such as whether sufficient client demand and economic incentives exist to justify the significant financial and personal commitment required to start and operate a charter business.

The set-aside may also change the competitive landscape within the charter industry since the economic barrier is removed for some but not other new and growing charter businesses. These effects are considered for the following situations: (1) within target communities; (2) between target communities; (3) target communities versus other remote communities; (4) target communities versus major ports; and (5) new

entrants that establish residence in the target communities in order to qualify for set-aside quota. This last situation would constitute a loop-hole in the program and may not be consistent with the program's intent.

Competitive Issues *Within* an Eligible Community: Within the same target community, some individuals may qualify for set-aside quota while others may not. The main limiting factor is the amount of QS received in the initial allocation. As proposed by the Coalition, individuals that receive 10,000 pounds of quota in the initial allocation would not be qualified to receive any set-aside quota. Yet, such a business may be in a good position to expand by adding another vessel for example. On the other hand, any owner that receives QS in the initial allocation benefits from the windfall gain associated with the initial allocation and can use the QS as collateral to facilitate the purchase of additional quota shares. Those that receive no QS in the initial allocation (or an amount below the individual cap of 10,000 lbs) may be qualified to receive quota from the set-aside but such quota cannot be leased, sold or used as collateral. As a result, those that receive set-aside quota do not share in the windfall gain granted to those that receive QS in the initial allocation. Instead, the set-aside quota helps recipients to start or grow their charter businesses without the additional financial burden of having to purchase QS (although eventually such businesses would be expected to purchase QS). In this sense, it is not likely that set-aside quota give recipients a competitive edge over others in the community that receive sufficient QS units from the initial allocation. It is possible, however, that some fairness issues may arise as a result of how the community's allocation of set-aside quota is distributed among qualified community members, especially if many members qualify and request allocations. It is also possible that the amount of set-aside quota available to a community is enough for only one or very few individuals. For example, if the magnitude of the set-aside is too low, the amount of quota available to a community may be enough for only one or two charter businesses. Then, it is possible that other new entrants in the same community would be at a competitive disadvantage relative to those that receive set-aside quota. (Section 4.2.11.2.4 considers the amount of quota each community may receive, depending on the magnitude of the set-aside.)

Competitive Issues *Between* Eligible Communities: Such fairness issues may arise between different communities eligible for the set-aside as well. The amount of set-aside quota each community receives depends on the number of eligible communities that request quota, and the number of qualified individuals in each community. The amount received by a community is subject to a community cap that includes any QS owned by community members, whether purchased or received in the initial allocation. It is possible, if the amount of quota requested from all eligible communities exceeds the amount available, that the set-aside quota would be distributed equally across all communities even though some communities have more qualified individuals than others. While the manner of distribution of the set-aside would be considered in a trailing amendment, such distributional issues may inadvertently create competitive advantages for some but not others. Distribution of set-aside quota among eligible communities and among qualified individuals may need to be based on other criteria that also reflect some measure of likeliness of success. Just as business loans are made in part on an evaluation of the owner's business plan, a similar procedure may be needed to address fairness issues surrounding the distribution of set-aside quota.

Remote Communities Not Eligible for Set-Aside Quota: Some remote communities that compete for the same clientele may not be eligible to participate in the community set-aside. This may include communities that exceed the community cap as a result of receiving QS in the initial allocation. For example, the Coalition proposes that communities with 50,000 pounds of QS should not be eligible to receive set-aside quota. There may be other communities that are clearly not major ports but do not meet the community eligibility requirements. For example, the 37 communities under consideration for the set-aside are remote (lack road access), small (population under 2,500), fishery dependent and coastal. There may be a community that is accessible by road but is far enough from a major part that it essentially competes for the same clientele as the target communities. If such communities are excluded from participation in the set-aside, they may be at

a competitive disadvantage relative to participating communities. New entrants located in such communities would need to purchase or lease halibut quota to start or grow their businesses. They would be faced with higher costs (start-up and marginal costs) and, as a result, may not be able to compete with charter businesses based in the target communities. This suggests a need for the community set-aside program to be as inclusive as possible with respect to communities in the remote-community charter sector.

New Entrants Based in Major Ports: The community set-aside may give new entrants based in the target communities a competitive advantage over new entrants based in major ports. New entrants located in a major port, like Homer or Juneau, would not qualify for any set-aside quota and would need to purchase or lease quota shares to start their business (assuming that no QS units are received in the initial allocation). Thus, new entrants located in major ports face higher start-up costs as a result of the charter IFQ program than new entrants located in communities eligible to receive set-aside quota. Yet, new entrants in major ports are likely to face substantially lower barriers to entry; major ports have better infrastructure, more services, more tourists, lower transportation costs, etc. Such new entrants are more likely to view other mature charter operators based in the same port as important competitors since they would be competing for the same clients. Since charter businesses based in target-communities appeal to an entirely different clientele, it is not clear that the community set-aside grants much of any competitive advantage over new entrants based in major ports. Additionally, new entrants based in major ports may be better positioned to obtain loans via the North Pacific loan program compared to those based in the remote communities.

Potential Program Loop-Hole: It is possible that some new entrants may relocate to and establish residency in one of the eligible communities in order to qualify for set-aside quota. The individual may use set-aside quota to establish a charter business (in the community) and develop a clientele but subsequently leave the community. To the extent that clients choose a charter company based on its reputation, the charter company may be able to take its clientele to its new location. If so, such an individual was able to take advantage of the community set-aside program but the community may not retain the longer-term economic benefits (even though the community may benefit economically while such charter businesses are being developed). This situation may not be consistent with the overall intent and goals of the program. Thus, the individual qualification criteria (to be developed in the trailing amendment should the Council adopt the community set-aside) may need to include conditions of residency designed to discourage this practice.

Administrative Costs

The CSA problem statement adopted by the Council in December 2000 addresses the need to provide for economic development opportunities in fisheries-dependent, coastal communities whose residents receive insufficient initial quota share. The proposed set-aside is intended to encourage the development of halibut charter businesses in these communities without creating a long-term entitlement to the resource. To address the ownership issue, the Coalition specifically structured the proposal to establish an allocated quota, owned and held in trust by a government authority, for distribution by a community management entity to residents of eligible communities. The Council and the Advisory Panel requested that staff address the potential administrative costs associated with this structure to the extent possible in this analysis, in order to compare the potential economic benefits of the set-aside with the cost of administering the program. Details on the program structure and administrative costs would be included in the trailing amendment.

Under the Coalition's proposal, two types of annual transfers of halibut charter quota would occur, both of which would incur some administrative costs. The first transfer is from the RAM Division of NMFS, the administering agency, to the designated community management entity. The second is from the management entity to qualified individuals within those communities. The proposal is that the community management entity would submit an annual transfer request to NMFS requesting transfer of a specific amount of halibut quota

(subject to a cap), based on the amount of quota applied for by qualified community residents. The community halibut quota would then be transferred to the management entity for further distribution to individuals. Any amount of the set-aside not requested by and committed to communities would roll-back to the general IFQ pool. The administrative costs associated with each of these transactions, while not quantifiable at this time, will be discussed briefly in the remainder of this section.

Firstly, there would be some cost to the RAM Division for collecting, verifying, and processing community quota requests. Preliminary discussions with RAM have indicated that while an additional administrative burden would exist, the marginal cost associated with this task would be fairly minimal. The internal structure for processing and distributing halibut IFQ already exists for the commercial program. Thus, should the Council decide to expand this program to the halibut charter sector, this structure will already be in place. Allowing communities to receive charter IFQ is not expected to increase the administrative costs of distributing charter quota significantly.

Up until 2000, NMFS incurred the costs of managing and enforcing the commercial IFQ program as described above. However, a recent regulatory amendment to the IFQ program (65 CFR 54, 3/20/00) requires that all IFQ permit holders who land IFQ halibut or sablefish must pay fees totaling up to 3 percent of the ex-vessel value of the their IFQ landings. The total costs incurred for managing and enforcing the IFQ program are divided by the total value of the halibut and sablefish IFQ fishery to derive the fee percentage to be applied to that year's IFQ landings (1.8 percent for year 2000). If the Council recommends and the Secretary implements the inclusion of the charter sector to the halibut IFQ program, the charter sector automatically is subject to cost recovery under the Magnuson-Stevens Act (Section 304(d)(2)(A)) which requires the Secretary to "collect a fee to recover the actual costs directly related to the management and enforcement of any individual fishing quota program." While it is difficult to assess the ex-vessel value of sport-caught fish, NMFS would need to determine an appropriate method to recover costs from the charter sector. Should the Council and Secretary also choose to set-aside charter IFQ for communities, individuals using community charter quota may also be subject to a cost-recovery fee. Thus, communities would receive charter quota at no cost but would still be required to pay a fee to help maintain the program. Under the cost recovery program, the minimal costs described above would be incurred by the industry, as opposed to the RAM Division.

The second quota transaction is from the community management entity to qualified individuals within those communities. Each eligible community would need to designate or create a specific entity as the transferee, which would effectively determine qualification for and distribution of community quota to residents. While many communities may have an appropriate existing governing structure, such as a municipality or tribal council, many communities would likely need to establish or modify such an entity to form a non-profit or economic development organization capable of managing charter quota. Thus, there would be the initial administrative cost of creating a community non-profit and applying for non-profit status.

Setting up a management entity may entail several organizational tasks, including establishing a decision-making structure and executive leadership, establishing financial oversight capability, and creating working ties to the RAM Division. This action will necessarily represent an initial cost to the community. To some extent, the Western Alaska CDQ program model may help guide the structure of the management entity, although there may be substantial variability in the management structures due to the varying levels of infrastructure and experience among communities. In addition, the CDQ program differs in that the community governing body retains the ultimate control over the underlying allocation, while the ownership of the set-aside quota is explicitly retained by the government. Note also that under the CDQ program the allocation is made to the CDQ group, and that group captures the fishery resource benefits just like other corporate entities under the IFQ program, albeit with a specific connection to communities (NRC 1999).

Under the proposed set-aside, the allocation is initially made to communities but only for redistribution to individual residents.

The second layer of administrative responsibility assigned to the management entity would entail soliciting and processing individual requests for community quota and submitting a comprehensive quota request to NMFS. Similar to the existing IFQ program, the cost associated with this transaction would be borne by industry, albeit limited to individual recipients of community charter quota. The Coalition proposal recommends that the entity recover administrative costs by instituting a fee based on a specific percentage of the ex-vessel value of the IFQ. While the appropriate fee is yet to be determined, the proposal suggests limiting the percentage to 10 percent of ex-vessel value. Thus, only those individuals using the community quota must incur the costs of administering that quota within the community.

The structure described above appears to create a very specific role for the community, and yet begs the question of whether that role is necessary to derive the individual benefits of the community set-aside. The goals of the community set-aside–economic development and sustained charter businesses in underdeveloped communities–may not be compromised by allowing NMFS to transfer community quota directly to qualified individuals in the communities eligible for the set-aside. NMFS already has the internal structure necessary to transfer quota share, and by doing so would lessen the financial and administrative burden on communities. Because the direct benefits of the quota are captured by individual residents, with the intent that sustained charter operations provide indirect benefits that filter through the community as a whole, there is little distinction in this program between communities and the individual. Thus, while there is a tie back to the community through the imposed program structure, the actual community role of transferring quota may be more perfunctory. The community role of establishing individual qualification criteria and processing applicants may be the more significant one, especially as individual businesses grow and the entity must distribute a limited amount of charter quota to a larger number of individual applicants. Another essential role for the community entity may be to help promote development of related businesses and services to support a halibut charter base.

In sum, industry will bear minimal administrative costs in adding communities as potential recipients of halibut charter quota under the existing IFQ program administered by NMFS. Greater costs will likely be borne by the individual community quota recipients and the eligible communities themselves in creating a management entity that can process individual applications and distribute community quota. While the cost of maintaining a community management entity could be recovered through a fee-based program, there may be more substantial start-up costs associated with establishing the proposed management structure, which would likely be incurred by the community as a whole.

4.2.11.2.4 Suboption 1: Source and Magnitude of the Set-Aside

This section provides an overview of how the initial allocations of commercial and charter halibut quota (under Issue 1) would be affected by the proposed community set-aside, depending on its source and magnitude. The proposed magnitude of the set-aside (Issue 11, Option 2) to Gulf communities is 0.5-2.5 percent of the annual combined halibut charter and commercial quota in Areas 2C and 3A. A separate decision point is from which sector(s) would that actual poundage be reallocated. The Council has approved three suboptions regarding the source of the 0.5-2.5 percent set-aside:

a) equal pounds from the commercial and charter sectors,
b) a proportional amount based on the percentage quota split between the commercial and charter sectors, or
c) the entire set-aside from the charter sector.

Community provisions in original IFQ program

As a backdrop for the community set-aside issue, specifically with regard to the decision on the *source* of the set-aside, it may be useful to provide the context for allocations made to western Alaska communities under the original IFQ program in 1995. The original halibut IFQ program included provisions to set aside part or all of the TAC in Areas 4B, 4C, 4D, and 4E for community development quotas (CDQs) in western Alaska. When part or all of the TAC was set aside for CDQs, individuals who received QS in these areas were faced with reduced harvest limits[28]. The IFQ plan contained provisions designed to compensate QS holders for this reduction. The goal of the plan was to spread the burden of the compensation equally among all persons who initially received halibut QS. Compensation was provided by giving commercial fishermen from the CDQ areas in western Alaska (Areas 4B, 4C, 4D, and 4E) additional QS in each of the management areas in which CDQs were not allocated (Areas 2C, 3A, 3B, and 4A). This additional QS was termed "compensation quota share."

Upon implementation of the commercial IFQ program, CDQ compensation QS was issued in Areas 2C through 4A and represented about **2.1%** of the total QS in each of these areas. Thus, while the existing western Alaska CDQ program does not extend into the Gulf of Alaska, the commercial sector in each of these areas in the Gulf gave up the equivalent of 2.1% of their total QS as part of a compensation plan for the commercial halibut sector in Areas 4B through 4E. The CSA program proposed in this analysis only relates to Areas 2C and 3A, and could potentially further reduce the commercial halibut quota in each of these two areas, depending on the source of the set-aside selected.

2001 combined commercial and charter halibut quota

Combined, the 2001 commercial and charter quota is estimated to be 9.830 million pounds in Area 2C and 24.646 million pounds in Area 3A. The IPHC staff approved a 2001 commercial halibut quota of 8.78 and 21.89 pounds for Areas 2C and 3A, respectively. The 2001 charter harvest projection is based on ADF&G preliminary estimates of 2000 sport harvest biomass for Areas 2C and 3A. Approximately 1.05 million pounds is estimated to be attributable to charter boats in Area 2C, and about 2.756 million pounds in Area 3A. Mean weight estimates for 2000 are based on samples from each area, and the number of fish harvested was projected from past years' data, as the Statewide Harvest Survey estimates are not yet available for 2000. In Area 2C, the projected number of fish harvested was based on a linear relationship between the final SWHS estimate and the respective combined inseason creel survey estimates for Juneau, Ketchikan, and Sitka in a given year. In Area 3A, the number of fish harvested was based on a linear projection of the 1995-1999 estimated harvest by each user group in each subarea.

Under Issue 1 of the overall halibut charter IFQ analysis, there are three options for calculating the initial quota share for the charter sector. **Option 1** would allocate 13.05% in Area 2C and 14.11% in Area 3A of the combined commercial and charter halibut quota to the charter sector. **Option 2** would allocate 10.73% in Area 2C and 9.82% in Area 3A to the charter sector. **Option 3** would allocate 10.44% in Area 2C and 11.29% in Area 3A to the charter sector. These three options are presented separately for each area in the following section. Note that all of the calculations in this section are based on the 2001 combined halibut quota, and that the amount of halibut (in pounds) corresponding to the percentages discussed would necessarily change with a fluctuating halibut TAC.

[28] The CDQ regulations are contained in 50 CFR 679.30 and 50 CFR 679.31(b) and(c). The provisions for CDQ compensation are contained in 50 CFR 679.41(j).

4.2.11.2.4.1 Impact on Initial Allocations under Issue 1, Option 1

Halibut charter GHLs[29] of 13.05% and 14.11% for Areas 2C and 3A, respectively, were applied to the 2001 combined commercial and charter quota to determine the initial allocation to the charter sector, under issues, option 1. The suboptions for the range and source of the community set-aside were then applied to determine the potential impact on the initial allocations to the commercial and charter sectors in each area. In Area 2C, using a 2001 combined charter and commercial harvest estimate of 9.83 M pounds, a 0.5 - 2.5 percent community set-aside would result in an allocation of 49,150 - 245,750 pounds to target communities. In Area 3A, using a 2001 combined charter and commercial harvest estimate of 24.646 M lbs, a 0.5 - 2.5 percent set-aside would result in an allocation of 123,230 - 616,150 pounds to target communities. Because the amount set aside for each area in a given year would depend on the amount requested by each community subject to a cap, these numbers represent the maximum annual allocation to communities under the proposed set-aside range. Recall that a key design feature of the proposed set-aside is that any amount not committed to communities in a given season would roll back to the general area IFQ pool prior to the start of the season.

Note also that the set-aside quota is determined by calculating 0.5 - 2.5 percent of the combined halibut charter and commercial quota for each regulatory area–that component does not change under these suboptions. The options for the source of the set-aside determine how much of that 0.5 - 2.5 percent will come from the commercial and charter sectors, respectively. The Council may select a set-aside anywhere within the 0.5 - 2.5 percent range evaluated in this analysis. The effects of the upper and lower bounds, as well as several point estimates within the range, are presented in this section.

Area 2C

Table 4.14 shows the effects of allocating the community set-aside in Area 2C according to each of the proposed suboptions. Note that this section refers only Option 1 to Issue 1, in which the charter sector's allocation is based on 125% of the 1995-99 average charter harvest, or **13.05%** of the combined halibut charter and commercial quota. Under a charter allocation of 13.05% , the halibut quota would be split 8.547 M lbs and 1.283 M lbs between the commercial and charter sectors, respectively, based on the 2001 combined halibut charter and commercial quota of 9.83 M lbs in Area 2C.

[29] ADF&G Statewide Harvest Survey estimates were corrected for the 1996, 1997, 1998, and 1999 halibut charter seasons. These corrections alter the resulting GHL percentages (based on the average 1995-1999 estimated charter harvests) for Areas 2C and 3A from 12.68% and 14.94%, respectively, to 13.05% and 14.11%.

Table 4.14: Impact of Community Set-aside Options on Commercial and Charter Halibut Quota in Area 2C under Issue 1, Option 1 Allocations[1]

Suboptions for Source of Set-aside[2]		Community Pounds	Commercial			Charter			
			Pounds	change[3]	% of combined IFQ	Pounds	change	% of combined IFQ	% above 1999 harvest[4]
No Set-aside		0	8,547,185	0	86.95	1,282,815	0	13.05	36.5%
	Set-aside								
	0.5%	49,150	8,522,610	-0.3%	86.70	1,258,240	-1.9%	12.80	33.9%
Suboption A:	1.0%	98,300	8,498,035	-0.6%	86.45	1,233,665	-3.8%	12.55	31.2%
Equal pounds	1.5%	147,450	8,473,460	-0.9%	86.20	1,209,090	-5.7%	12.30	28.6%
	2.0%	196,600	8,448,885	-1.2%	85.95	1,184,515	-7.7%	12.05	26.0%
	2.5%	245,750	8,424,310	-1.4%	85.70	1,159,940	-9.6%	11.80	23.4%
	0.5%	49,150	8,504,449	-0.5%	86.52	1,276,401	-0.5%	12.98	35.8%
Suboption B:	1.0%	98,300	8,461,713	-1.0%	86.08	1,269,987	-1.0%	12.92	35.1%
Proportional	1.5%	147,450	8,418,977	-1.5%	85.65	1,263,573	-1.5%	12.85	34.4%
shares	2.0%	196,600	8,376,241	-2.0%	85.21	1,257,159	-2.0%	12.79	33.7%
	2.5%	245,750	8,333,505	-2.5%	84.78	1,250,745	-2.5%	12.72	33.1%
	0.5%	49,150	8,547,185	0.0%	86.95	1,233,665	-3.8%	12.55	31.2%
Suboption C:	1.0%	98,300	8,547,185	0.0%	86.95	1,184,515	-7.7%	12.05	26.0%
100% from	1.5%	147,450	8,547,185	0.0%	86.95	1,135,365	-11.5%	11.55	20.8%
charter sector	2.0%	196,600	8,547,185	0.0%	86.95	1,086,215	-15.3%	11.05	15.6%
	2.5%	245,750	8,547,185	0.0%	86.95	1,037,065	-19.2%	10.55	10.3%

[1] Under Issue 1, Option 1, a halibut charter GHL of 13.05% in Area 2C is applied to the 2001 combined charter harvest and commercial halibut quota to determine the initial allocation to the existing charter sector. The GHLs are based on corrected 1996-1999 SWHS data.

[2] The Council may select a set-aside anywhere within the range of 0.5-2.5% of the combined commercial and charter halibut quota.

[3] These values represent the percent change in the actual poundage allocated to each sector under each suboption.

[4] The charter sector harvested 0.94 million pounds of halibut in Area 2C in 1999.

Suboption A, in which equal pounds of the set-aside are taken from the commercial and charter sectors, results in a 0.3 - 1.4 percent decrease to the commercial sector's halibut quota and a 1.9 - 9.6 percent decrease to the charter allocation. Using the 2001 combined quota, this translates to a 24,575 - 122,875 pound reduction to each sector's initial allocation. Suboption B distributes the set-aside proportionally between the commercial and charter sectors, resulting in a 0.5 - 2.5 percent reduction to both sectors. This translates to a 42,736 - 213,680 pound reduction in the commercial sector and a 6,414 - 32,070 pound reduction in the charter sector. Suboption C, in which the entire community set-aside is taken from the charter quota, results in no change to the commercial allocation and a 3.8 - 19.2 percent reduction (49,150 - 245,750 pounds) to the charter allocation.

Because the commercial sector is allocated such a large percentage of the combined quota (86.95% under Option 1), the impact of the set-aside on the commercial sector under any suboption is relatively modest on a percentage basis. For this same reason, the commercial sector's allocation would be affected less under Suboption A, in which equal pounds are taken from the commercial and charter sectors, than under Suboption B, in which a proportional amount is taken from each sector. Suboption B results in the greatest potential loss to the commercial sector, since 86.95 percent of the set-aside amount would be taken from that sector's allocation. Suboption C, in which the entire set-aside is taken from the charter sector, naturally results in no impact to the commercial sector's initial allocation. Thus, under all of the available options for both the

magnitude and the source of the set-aside, the maximum potential loss from the commercial sector is 213,680 pounds, resulting from a 2.5 percent set-aside taken proportionally from both sectors (Suboption B).

By contrast, because the charter sector receives a much smaller percentage of the combined quota (13.05% under Option 1), the charter sector would assume greater deductions under Suboptions A and C than under Suboption B. Unlike the commercial sector, the impact of the set-aside on the charter sector varies greatly with the source. Under Suboption B, the maximum reduction to the initial charter allocation is 2.5 percent, while under Suboption A, that sector could realize almost a 10 percent decrease. Under Suboption C, the charter allocation could potentially decrease by up to 19.2 percent. So while the magnitude of the set-aside partially determines the impact to each sector, the related decision on the source of the set-aside is at least as significant to the charter sector. For instance, should the Council adopt a 1.5 percent set-aside, whether it is taken in equal pounds (Suboption A), proportional (Suboption B), or not at all (Suboption C) from the commercial sector, the result would be 0.9, 1.5, and 0 percent reductions to the initial commercial allocation. However, that same set-aside of 1.5 percent, under Suboptions A, B, and C, results in 5.7, 1.5, and 11.5 percent reductions to the existing charter fleet's allocation.

While the current charter fleet's initial allocation could potentially be reduced by up to 19.2 percent, this should not be interpreted as a 19.2 percent reduction to what the charter sector has *historically* harvested. Recall that the allocation does not represent the harvest level of the charter sector in the past, but rather that sector's historical harvest plus a buffer of 25 percent for additional charter growth. The allocation under Option 1 is based on the charter sector receiving 125 percent of its average 1995-99 harvest in each area (NPFMC 2000). Note then that the percentage change reported in Table 4.14 as a result of setting aside quota for communities applies to the initial charter *allocation*, based on 125 percent of their average 1995-99 harvest, and not the amount of halibut they harvested in the recent past.

Table 4.14 quantifies this distinction in the far right-hand column. This column relates the percent difference between the charter allocation under each suboption for a set-aside and the actual charter harvest in 1999. The most recent available data from ADF&G indicate that the charter sector harvested 0.94 million pounds of halibut in Area 2C in 1999. With no set-aside, implementing a 13.05% charter allocation would allocate about 1.283 M lbs to the charter sector in Area 2C using the 2001 combined quota. Based on those numbers, the charter catch would need to increase by about **36.5%** over the 1999 harvest level before it would reach its quota. This column shows how the set-aside would affect the buffer built into the charter allocation for growth in the charter industry. For example, under the maximum set-aside proposed (2.5%) and Suboption C, the initial *allocation* to the charter sector would be reduced by about 19%, but the charter sector *harvest* would still need to *increase* by about **10%** over the 1999 harvest level before it would be constrained by the quota. Under Option 1, there is no proposed option for the set-aside that would constrain the current charter harvest; the greatest impact of any of the options would be to reduce the buffer built into the charter allocation to 10% over 1999 catch levels.

Area 3A

Table 4.15 shows the same information for Area 3A. Again, this section refers only to Option 1 under Issue 1, in which the charter sector's allocation in Area 3A is based on an allocation of **14.11%** of the combined halibut charter and commercial quota (equal to 125% of the 1995-99 average charter harvest). Under a 14.11% charter allocation, the halibut quota would be split 21.168 M and 3.478 M lbs between the commercial and charter sectors, respectively, based on the 2001 combined halibut charter and commercial quota of 24.646 M pounds for Area 3A.

Suboption A, in which equal pounds of the set-aside are taken from the commercial and charter sectors, results in a 0.3 - 1.5 percent decrease to the commercial sector's halibut quota and a 1.8 - 8.9 percent decrease to the charter sector's allocation. Using the 2001 combined quota, this represents a 61,615 - 308,075 pound reduction to each sector. Suboption B distributes the set-aside proportionally between the commercial and charter sectors, resulting in a 0.5 - 2.5 percent reduction to both sectors' initial allocations. This translates to a 105,842 - 529,211 pound reduction to the commercial sector and 17,388 - 86,939 pound reduction to the charter sector. Suboption C, in which the entire community set-aside is taken entirely from the charter sector, results in no change to the commercial allocation and a 3.5 - 17.7 percent reduction (123,230 - 616,150 lbs) to the initial charter allocation.

Table 4.15: Impact of Community Set-aside Options on Commercial and Charter Halibut Quota in Area 3A under Issue 1, Option 1 Allocations[1]

Suboptions for Source of Set-aside[2]		**Community Pounds**	**Commercial**			**Charter**			
			Pounds	change[3]	% of combined IFQ	Pounds	change	% of combined IFQ	% above 1999 harvest[4]
No Set-aside		0	21,168,449	0	85.89	3,477,551	0	14.11	37.5%
	Set-aside								
	0.5%	123,230	21,106,834	-0.3%	85.64	3,415,936	-1.8%	13.86	35.0%
Suboption A:	1.0%	246,460	21,045,219	-0.6%	85.39	3,354,321	-3.5%	13.61	32.6%
Equal pounds	1.5%	369,690	20,983,604	-0.9%	85.14	3,292,706	-5.3%	13.36	30.1%
	2.0%	492,920	20,921,989	-1.2%	84.89	3,231,091	-7.1%	13.11	27.7%
	2.5%	616,150	20,860,374	-1.5%	84.64	3,169,476	-8.9%	12.86	25.3%
	0.5%	123,230	21,062,607	-0.5%	85.46	3,460,163	-0.5%	14.04	36.8%
Suboption B:	1.0%	246,460	20,956,765	-1.0%	85.03	3,442,775	-1.0%	13.97	36.1%
Proportional	1.5%	369,690	20,850,923	-1.5%	84.60	3,425,387	-1.5%	13.90	35.4%
shares	2.0%	492,920	20,745,080	-2.0%	84.17	3,409,043	-2.0%	13.83	34.7%
	2.5%	616,150	20,639,238	-2.5%	83.74	3,390,612	-2.5%	13.76	34.0%
	0.5%	123,230	21,168,449	0.0%	85.89	3,354,321	-3.5%	13.61	32.6%
Suboption C:	1.0%	246,460	21,168,449	0.0%	85.89	3,231,091	-7.1%	13.11	27.7%
100% from	1.5%	369,690	21,168,449	0.0%	85.89	3,107,861	-10.6%	12.61	22.8%
charter sector	2.0%	492,920	21,168,449	0.0%	85.89	2,984,631	-14.2%	12.11	18.0%
	2.5%	616,150	21,168,449	0.0%	85.89	2,861,401	-17.7%	11.61	13.1%

[1] Under Issue 1, Option 1, a halibut charter GHL of 14.11% in Area 3A is applied to the 2001 combined charter harvest and commercial halibut quota to determine the initial allocation to the existing charter sector. The GHLs are based on corrected 1996-1999 SWHS data.

[2] The Council may select a set-aside anywhere within the range of 0.5-2.5% of the combined commercial and charter halibut quota.

[3] These values represent the percent change in the actual poundage allocated to each sector under each suboption.

[4] The charter sector harvested 2.53 million pounds of halibut in Area 3A in 1999.

Again, because the commercial sector is allocated such a large percentage of the combined quota under Option 1 (85.89%) in Area 3A, there is a relatively modest impact to the commercial sector on a percentage basis. Suboption A, in which equal pounds are taken from each sector, results in a maximum 1.5% reduction to the commercial sector's initial allocation. Suboption B, in which a proportional amount is taken from each sector, results in the greatest potential loss to the commercial sector (up to 2.5%). Suboption C, in which the entire set-aside is taken from the charter sector, results in no impact to the commercial sector's initial halibut allocation. Thus, under all of the available options for both the magnitude and the source of the set-aside, the maximum potential loss to the commercial sector is 529,211 pounds, resulting from a 2.5 percent set-aside taken proportionally from both sectors (Suboption B).

The charter sector, held to an allocation of 14.11% of the combined quota in Area 3A under Option 1, would experience greater deductions under Suboptions A and C than under Suboption B. As stated previously for

Area 2C, the impact of the set-aside on the charter sector varies greatly with the source. Under Suboption B, the maximum reduction to the initial charter sector allocation is 2.5 percent, while under Suboption A, that sector could realize almost a 9 percent decrease. If the charter sector bears the entire set-aside (Suboption C), the initial charter allocation could potentially decrease by up to 17.7 percent, depending on the magnitude of the set-aside. For example, should the Council adopt a 1.5 percent set-aside, whether it is taken in equal pounds (Suboption A), proportional (Suboption B), or not at all (Suboption C) from the commercial sector, the result would be 0.9, 1.5, and 0 percent reductions to the initial commercial allocation. However, that same set-aside amount of 1.5 percent, under Suboptions A, B, and C, results in a 5.3, 1.5, and 10.6 percent reduction to the initial charter allocation, respectively.

Recall also that as in Area 2C, the charter allocation under Option 1 (14.11% of the combined quota) does not represent the harvest level of the charter sector in the past, but rather that sector's historical harvest plus a buffer of 25% for additional charter growth. Note then that the percentage change reported in Table 4.15 as a result of setting aside quota for communities applies to the initial charter *allocation*, based on 125% of their average 1995-99 harvest, and not the amount of halibut they *harvested* in the recent past.

In order to provide this context, Table 4.15 also relates the percent difference between the charter allocation under each suboption for a set-aside and the actual charter harvest in 1999. The most recent available data from ADF&G indicate that the charter sector harvested 2.53 million pounds of halibut in Area 3A in 1999. With no set-aside, implementing a 14.11% charter allocation would allocate about 3,477,551 lbs to the charter sector in Area 3A using the 2001 combined quota. Based on those numbers, the charter catch would need to increase by about **37.5%** over the 1999 harvest level before it would reach the quota. Similar to Area 2C, the options under consideration for the set-aside would not affect the current charter harvest because of the magnitude of the buffer built into the allocation. The set-aside would, however, reduce the buffer for future growth. Thus, under Option 1, there is no proposed option for the set-aside that would constrain the current charter harvest in Area 3A; the greatest impact of any of the options would be to reduce the buffer built into the charter allocation to **13%** over 1999 catch levels.

4.2.11.2.4.2 Impact on Initial Allocations under Issue 1, Option 2

Under Issue 1, Option 2 of this analysis, halibut charter allocations of 10.73% and 9.82% for Areas 2C and 3A, respectively, are also under consideration. These allocations are based on the average 1998-99 charter harvest. This section is presented exactly as in the previous section, only using these modified allocations. While the amount of quota allocated to the charter and commercial sectors is directly tied to the allocation percentage selected in this analysis, recall that the set-aside is calculated using the <u>combined</u> charter and commercial quota. Thus, the amount of quota set aside for target communities does not change under each of the options considered for initial distribution of quota share. What does change is the level of impact the set-aside has on the initial allocations to the commercial and charter sectors. Therefore, under each of the options under consideration for setting the charter allocation in Issue 1, a 0.5 - 2.5 percent community set-aside results in an allocation of 49,150 - 245,750 pounds to target communities in Area 2C and 123,230 - 616,150 pounds to target communities in Area 3A, based on the 2001 combined quotas (regardless from which sector it is reallocated).

<u>Area 2C</u>

Table 4.16 shows the effect of allocating the community set-aside in Area 2C according to each of the proposed suboptions. This section refers to Option 2, in which the charter sector's allocation in Area 2C is based on **10.73%** of the combined halibut charter and commercial quota. The commercial sector would then be allocated 89.27%. Under the no action alternative and a 10.73% charter allocation, the halibut quota would

be split 8.775 M and 1.055 M pounds between the commercial and charter sectors, respectively, based on the 2001 combined halibut charter and commercial quota of 9.830 pounds in Area 2C.

The *percent change* to the commercial fleet's initial allocations using a charter allocation of 10.73% under Option 2 are slightly lower compared to using a 13.05% charter allocation under Option 1. This is because the commercial sector is allocated such a relatively large percentage of the combined quota under either option, so an increase of 2.32% to the commercial sector under Option 2 does not affect the commercial allocation very much (compare Tables 4.14 and 4.16). Using a charter allocation of 10.73%, under all of the available suboptions for both the magnitude and the source of the set-aside, the maximum potential loss to the commercial sector is 219,381 pounds, resulting from a 2.5 percent set-aside taken proportionally from both sectors (Suboption B). Under Option 1, the maximum potential reduction to the commercial quota is also 2.5%, which represents 213,680 pounds, a difference of 5,701 pounds.

Because the charter sector allocation decreases by 2.32% under Option 2, the effect of the set-aside on the charter sector increases under this option. Suboption A, in which equal pounds of the set-aside are taken from the commercial and charter sectors, results in a 2.3 - 11.6 percent (24,575 - 122,875 lb) decrease to the charter allocation. Suboption B distributes the set-aside proportionally between the commercial and charter sectors, resulting in a 0.5 - 2.5 percent (5,274 - 26,369 lb) decrease to the charter sector's initial allocation. Suboption C, in which the entire community set-aside is taken only from the charter sector, results in a 4.7 - 23.3 percent reduction (49,150 - 245,750 lb) to the charter allocation in Area 2C. Thus, regardless of the initial allocation, the greatest potential loss to the charter sector under any of the options is still the maximum set-aside amount, or 245,750 lbs.

Table 4.16: Impact of Community Set-aside Options on Commercial and Charter Halibut Quota in Area 2C Under Issue 1, Option 2 Allocations[1]

Suboptions for Source of Set-aside[2]		Community Pounds	Commercial			Charter			
			Pounds	change[3]	% of combined IFQ	Pounds	change	% of combined IFQ	% above 1999 harvest[4]
No Set-aside		0	8,775,241	0	89.27	1,054,759	0	10.73	12.2%
Suboption A: Equal pounds	Set-aside								
	0.5%	49,150	8,750,666	-0.3%	89.02	1,030,184	-2.3%	10.48	9.6%
	1.0%	98,300	8,726,091	-0.6%	88.77	1,005,609	-4.7%	10.23	7.0%
	1.5%	147,450	8,701,516	-0.8%	88.52	981,034	-7.0%	9.98	4.4%
	2.0%	196,600	8,676,941	-1.1%	88.27	956,459	-9.3%	9.73	1.8%
	2.5%	245,750	8,652,366	-1.4%	88.02	931,884	-11.6%	9.48	-0.9%
Suboption B: Proportional shares	0.5%	49,150	8,731,365	-0.5%	88.82	1,049,485	-0.5%	10.68	11.6%
	1.0%	98,300	8,687,489	-1.0%	88.38	1,044,211	-1.0%	10.62	11.1%
	1.5%	147,450	8,643,612	-1.5%	87.93	1,038,938	-1.5%	10.57	10.5%
	2.0%	196,600	8,599,736	-2.0%	87.48	1,033,664	-2.0%	10.52	10.0%
	2.5%	245,750	8,555,860	-2.5%	87.04	1,028,390	-2.5%	10.46	9.4%
Suboption C: 100% from charter sector	0.5%	49,150	8,775,241	0.0%	86.68	1,005,609	-4.7%	10.23	7.0%
	1.0%	98,300	8,775,241	0.0%	86.68	956,459	-9.3%	9.73	1.8%
	1.5%	147,450	8,775,241	0.0%	86.68	907,309	-14.0%	9.23	-3.5%
	2.0%	196,600	8,775,241	0.0%	86.68	858,159	-18.6%	8.73	-8.7%
	2.5%	245,750	8,775,241	0.0%	86.68	809,009	-23.3%	8.23	-13.9%

[1] Under Issue 1, Option 2, a halibut charter GHL of 10.73% in Area 2C is applied to the 2001 combined charter harvest and commercial halibut quota to determine the initial allocation to the existing charter sector. The GHLs are based on corrected 1996-1999 SWHS data.

[2] The Council may select a set-aside anywhere within the range of 0.5-2.5% of the combined commercial and charter halibut quota.

[3] These values represent the percent change in the actual poundage allocated to each sector under each suboption.

[4] The charter sector harvested 0.94 million pounds of halibut in Area 2C in 1999.

The charter allocation under Option 2 (10.73% of the combined quota) represents the charter sector's average 1998-99 historical harvest. The percent difference between the charter allocation under each suboption for a set-aside and the actual charter harvest in 1999 is shown in the far right-hand column in Table 4.16. ADF&G data indicate that the charter sector harvested 0.94 million pounds of halibut in Area 2C in 1999. With no set-aside, implementing a 10.73% charter allocation would allocate about 1.055 lbs to the charter sector in Area 2C using the 2001 combined quota. Note that because the charter sector in Area 2C harvested fewer halibut in 1999 than in 1998, an allocation equal to 10.73% of the combined quota still provides for **12.2%** additional growth above 1999 harvest levels.

Unlike Option 1 presented in the previous section, some of the options under consideration for the set-aside under Option 2 could potentially affect the current charter harvest. For example, if Suboption A is selected, a 2.5% set-aside would constrain the charter sector to 0.9% below 1999 catch levels. A smaller set-aside under the same suboption would still provide a buffer in the charter quota for growth of about 1.8 - 9.6% above 1999 catch levels. Suboption B would also continue to provide a buffer for charter growth, from 9.4 - 11.6%, depending on the magnitude of the set-aside. Finally, under Suboption C, there again is the potential for the set-aside to constrain the charter sector below 1999 catch levels. The greatest impact of any of the set-aside suboptions would be to reduce the charter sector's allocation to **13.9%** below 1999 catch levels (a 2.5% set-aside under Suboption C).

Area 3A

Table 4.17 shows the effect of allocating the community set-aside in Area 3A according to each of the proposed suboptions.if the Council selects Issue 1, Option 2, in which the charter sector's allocation in Area 3A is based on **9.82%** of the combined halibut charter and commercial quota. Under the no action alternative and a 9.82% charter allocation, the halibut quota would be split 22.226 M and 2.420 M pounds between the commercial and charter sectors, respectively, based on the 2001 combined halibut charter and commercial quota of 24.646 pounds for Area 3A.

Intuitively, the effects of Option 2 are greater for Area 3A than for Area 2C. In Area 2C, the charter allocations identified under Options 1 and 2 are 13.05% and 10.73% of the combined quota, respectively, a difference of 2.32%. In Area 3A, the charter allocations under Options 1 and 2 are 14.11% and 9.82%, respectively, a difference of 4.29%, which is reflected in the impact of the set-aside.

Table 4.17: Impact of Community Set-aside Options on Commercial and Charter Halibut Quota in Area 3A Under Issue 1, Option 2 Allocations[1]

Suboptions for Source of Set-aside[2]		**Community Pounds**	**Commercial**			**Charter**			
			Pounds	change[3]	% of combined IFQ	Pounds	change	% of combined IFQ	% above 1999 harvest[4]
No Set-aside		0	22,225,763	0	90.18	2,420,237	0	9.82	-4.3%
	Set-aside								
	0.5%	123,230	22,164,148	-0.3%	89.93	2,358,622	-2.5%	9.57	-6.8%
Suboption A:	1.0%	246,460	22,102,533	-0.6%	89.68	2,297,007	-5.1%	9.32	-9.2%
Equal pounds	1.5%	369,690	22,040,918	-0.8%	89.43	2,235,392	-7.6%	9.07	-11.6%
	2.0%	492,920	21,979,303	-1.1%	89.18	2,173,777	-10.2%	8.82	-14.1%
	2.5%	616,150	21,917,688	-1.4%	88.93	2,112,162	-12.7%	8.57	-16.5%
	0.5%	123,230	22,114,634	-0.5%	89.73	2,408,136	-0.5%	9.77	-4.8%
Suboption B:	1.0%	246,460	22,003,505	-1.0%	89.28	2,396,035	-1.0%	9.72	-5.3%
Proportional	1.5%	369,690	21,892,376	-1.5%	88.83	2,383,934	-1.5%	9.67	-5.8%
shares	2.0%	492,920	21,781,248	-2.0%	88.38	2,371,832	-2.0%	9.62	-6.3%
	2.5%	616,150	21,670,119	-2.5%	87.93	2,359,731	-2.5%	9.57	-6.7%
	0.5%	123,230	22,225,763	0.0%	87.74	2,297,007	-5.1%	9.32	-9.2%
Suboption C:	1.0%	246,460	22,225,763	0.0%	87.74	2,173,777	-10.2%	8.82	-14.1%
100% from	1.5%	369,690	22,225,763	0.0%	87.74	2,050,547	-15.3%	8.32	-19.0%
charter sector	2.0%	492,920	22,225,763	0.0%	87.74	1,927,317	-20.4%	7.82	-23.8%
	2.5%	616,150	22,225,763	0.0%	87.74	1,804,087	-25.5%	7.32	-28.7%

[1] Under Issue 1, Option 2, a halibut charter GHL of 9.82% in Area 3A is applied to the 2001 combined charter harvest and commercial halibut quota to determine the initial allocation to the existing charter sector. The GHLs are based on corrected 1996-1999 SWHS data.

[2] The Council may select a set-aside anywhere within the range of 0.5-2.5% of the combined commercial and charter halibut quota.

[3] These values represent the percent change in the actual poundage allocated to each sector under each suboption.

[4] The charter sector harvested 2.53 million pounds of halibut in Area 3A in 1999.

Compared to Option 1, the commercial sector in Area 3A is allocated a higher percentage of the combined quota than under Option 2 (90.18% versus 85.89%). However, the difference in the impact of the set-aside on the commercial sector between the options is negligible on a *percentage* basis, because the commercial sector is allocated such a relatively high percentage of the combined quota in both cases . Suboption A, in which equal pounds are taken from each sector, results in a 0.3 - 1.4 percent reduction to the commercial sector's initial allocation and a 2.5 - 12.7 percent decrease to the charter allocation. Using the 2001 combined quota, this translates to a 61,615 - 308,075 pound reduction to each sector's initial allocation. Suboption B, in

which a proportional amount is taken from each sector, results in a 0.5 - 2.5 percent reduction to both sectors, which represents a 111,129 - 555,644 pound reduction to the commercial sector and a 12,101 - 60,506 pound reduction to the charter sector. Suboption C, in which the entire set-aside is taken from the charter sector, results in no impact to the commercial sector's initial halibut allocation and a 5.1 - 25.5 percent reduction (123,230 - 616,150 pounds) to the charter allocation in Area 3A.

Thus, under all of the available options for both the magnitude and the source of the set-aside, the maximum potential loss to the commercial sector is 555,644 pounds, resulting from a 2.5 percent set-aside taken proportionally from both sectors (Suboption B). Recall that under Option 1 and a charter allocation of 14.11%, the maximum potential reduction to the commercial quota is also 2.5 percent, which translates to 529,211 pounds (a difference of 26,433 pounds). In the charter sector, the greatest potential loss is still the maximum set-aside amount, or 616,150 lbs (Suboption C), regardless of the initial charter allocation selected.

The charter allocation under Option 2 (9.82% of the combined quota) represents the charter sector's average 1998-99 historical harvest. Recall that ADF&G reports that the charter sector harvested 2.53 million pounds of halibut in Area 3A in 1999. With no set-aside, implementing a 9.82% charter quota would allocate about 2.420 lbs to the charter sector in Area 3A using the 2001 combined quota. Based on those numbers, even without a set-aside, the charter harvest would need to decrease to **4.3%** below the 1999 harvest level to stay within the charter quota proposed under Option 2 (using the 2001 TAC).

Unlike Option 1 presented in the previous section, all of the options under consideration for the set-aside under Option 2 could potentially affect the current charter harvest. For example, if Suboption A is selected, the charter sector could be reduced to 6.8 - 16.5% below the 1999 catch level. Suboption B would also reduce current charter harvest, from 4.8 - 6.7%, depending on the magnitude of the set-aside. Under Suboption C, the charter allocation could decrease to 9.2 - 28.7% below 1999 catch levels. Recall that even without a set-aside, the charter allocation under consideration under Issue 1, Option 2 would restrict the charter sector to about 4.3% below their 1999 catch.

4.2.11.2.4.3 Impact on Initial Allocations under Issue 1, Option 3

Area 2C

Under Issue 1, Option 3 of the overall halibut charter IFQ analysis, halibut charter allocations of 10.44% and 11.29% for Areas 2C and 3A, respectively, are also under consideration. These allocations are based on the 1995-99 average charter harvest. Table 4.18 shows the effects of allocating the community set-aside in Area 2C according to each of the proposed suboptions when the charter sector's initial allocation is **10.44%** of the combined halibut charter and commercial quota. Under a 10.44% charter allocation and without a set-aside, the halibut quota would be split 8.804 M and 1.026 M pounds between the commercial and charter sectors, respectively, based on the 2001 combined halibut charter and commercial quota of 9.830 M pounds in Area 2C.

Under Option 3, the commercial sector's initial allocation (89.56% of the combined halibut quota) increases by 2.61% and 0.29% compared to Options 1 and 2, respectively. Yet because the commercial sector is allocated such a large percentage of the combined quota under all three options, the effect of the set-aside on the commercial allocation does not change on a *percentage* basis regardless of the charter allocation selected under Issue 1 (compare Tables 4.14, 4.16, and 4.18). Under all of the suboptions under consideration, the maximum potential loss to the commercial sector is 2.5% of it's initial allocation (Suboption B). Under Option 3 and the 2001 TAC, that translates to 220,094 pounds.

Table 4.18: Impact of Community Set-aside Options on Commercial and Charter Halibut Quota in Area 2C under Issue 1, Option 3 Allocations[1]

Suboptions for Source of Set-aside[2]		Community Pounds	Commercial			Charter			
			Pounds	change[3]	% of combined IFQ	Pounds	change	% of combined IFQ	% above 1999 harvest[4]
No Set-aside		0	8,803,748	0	89.56	1,026,252	0	10.44	9.2%
	Set-aside								
	0.5%	49,150	8,779,173	-0.3%	89.31	1,001,677	-2.4%	10.19	6.6%
Suboption A:	1.0%	98,300	8,754,598	-0.6%	89.06	977,102	-4.8%	9.94	3.9%
Equal pounds	1.5%	147,450	8,730,023	-0.8%	88.81	952,527	-7.2%	9.69	1.3%
	2.0%	196,600	8,705,448	-1.1%	88.56	927,952	-9.6%	9.44	-1.3%
	2.5%	245,750	8,680,873	-1.4%	88.31	903,377	-12.0%	9.19	-3.9%
	0.5%	49,150	8,759,729	-0.5%	89.11	1,021,121	-0.5%	10.39	8.6%
Suboption B:	1.0%	98,300	8,715,711	-1.0%	88.66	1,015,989	-1.0%	10.34	8.1%
Proportional	1.5%	147,450	8,671,692	-1.5%	88.22	1,010,858	-1.5%	10.28	7.5%
shares	2.0%	196,600	8,627,673	-2.0%	87.77	1,005,727	-2.0%	10.23	7.0%
	2.5%	245,750	8,583,654	-2.5%	87.32	1,000,596	-2.5%	10.18	6.4%
	0.5%	49,150	8,803,748	0.0%	89.56	977,102	-4.8%	9.94	3.9%
Suboption C:	1.0%	98,300	8,803,748	0.0%	89.56	927,952	-9.6%	9.44	-1.3%
100% from	1.5%	147,450	8,803,748	0.0%	89.56	878,802	-14.4%	8.94	-6.5%
charter sector	2.0%	196,600	8,803,748	0.0%	89.56	829,652	-19.2%	8.44	-11.7%
	2.5%	245,750	8,803,748	0.0%	89.56	780,502	-23.9%	7.94	-17.0%

[1] Under Issue 1, Option 3, a halibut charter GHL of 10.44% in Area 2C is applied to the 2001 combined charter harvest and commercial halibut quota to determine the initial allocation to the existing charter sector. The GHLs are based on corrected 1996-1999 SWHS data.

[2] The Council may select a set-aside anywhere within the range of 0.5-2.5% of the combined commercial and charter halibut quota.

[3] These values represent the percent change in the actual poundage allocated to each sector under each suboption.

[4] The charter sector harvested 0.94 million pounds of halibut in Area 2C in 1999.

The *percent changes* to the charter fleet allocations as a result of the set-aside are greater under a charter allocation of 10.44% (Option 3) than under allocations of 13.05% (Option 1) or 10.73% (Option 2), simply because the charter sector is receiving a lower percentage of the combined quota. Under Option 3, the charter sector allocation decreases by 2.61% and 0.29% when compared to Options 1 and 2, respectively. Suboption A, in which equal pounds of the set-aside are taken from the commercial and charter sectors, results in a 2.4 - 12.0 percent (24,575 - 122,875 lb) decrease to the charter allocation. Suboption B distributes the set-aside proportionally between the commercial and charter sectors, resulting in a 0.5 - 2.5 percent (5,131 - 25,656 lb) decrease to the charter sector's initial allocation. Suboption C, in which the entire community set-aside is taken only from the charter sector, results in a 4.8 - 23.9 percent reduction (49,150 - 245,750 lb) to the charter allocation in Area 2C. Thus, the greatest potential loss to the charter sector is still the maximum set-aside amount, or 245,750 lbs. However, 245,750 pounds equates to a 23.9% reduction in the charter allocation if the initial allocation is set at 10.44% of the combined quota (Option 3), while the same set-aside amount equates to a 19.2% reduction under an initial charter allocation of 13.05% of the combined quota (Option 1) and a 23.3% reduction under a 10.73% charter allocation (Option 2).

The charter allocation under Option 3 (10.44% of the combined quota in Area 2C) represents the charter sector's average 1995-99 historical harvest. ADF&G data indicate that the charter sector harvested 0.94 million pounds of halibut in Area 2C in 1999. With no set-aside, implementing a 10.44% charter quota would allocate about 1.026 M lbs to the charter sector in Area 2C using the 2001 combined quota. Based on those numbers, the charter catch could increase by about **9.2%** over the 1999 harvest level before it would reach

the quota. Table 4.18 shows that only Suboptions A and C for a set-aside would necessarily affect the current charter harvest level. For example, if a 0.5% set-aside was selected under Suboption A, the charter sector would still need to increase 6.6% over the 1999 harvest level before being constrained by the quota. However, if a 2.5% set-aside was selected under Suboption A, the charter sector allocation would be reduced to 3.9% below 1999 harvest levels. Under Suboption B, there would still exist a 6.4 - 8.6% buffer for growth above 1999 catch levels. Under Suboption C, the greatest impact of any of the options would be to reduce the allocation to the charter sector to 17.0% below 1999 catch levels.

Area 3A

Table 4.19 shows the effects of allocating the community set-aside in Area 3A according to each of the proposed suboptions when the charter sector's initial allocation is based on **11.29%** of the combined halibut charter and commercial quota under Issue 1, Option 3. Under the no action alternative and a 11.29% charter allocation, the halibut quota would be split 21.863 M and 2.783 M pounds between the commercial and charter sectors, respectively, based on the 2001 combined halibut charter and commercial quota of 24.646 M pounds in Area 3A.

Intuitively, the effects of the options under consideration in Issue 1are slightly greater for Area 3A than for Area 2C. In Area 2C, the charter allocations identified under Options 1, 2, and 3 are 13.05%, 10.73%, and 10.44%, respectively, a difference of up to 2.61%. In Area 3A, the charter allocations under Options 1, 2, and 3 are 14.11%, 9.82%, and 11.29%, respectively, a difference of up to 4.29%. Because the charter sector in Area 3A would be allocated a greater percentage of the combined quota under Option 1, the set-aside has a smaller effect on the charter sector under that option compared to the other options. Option 2 allocates the smallest percentage to the charter sector in Area 3A, so adoption of a set-aside has the greatest effect on the charter sector under that option. The allocation percentage under consideration in Option 3 falls between those two options.

As stated previously, the charter allocation options under consideration in Issue 1 do not change the impact of the set-aside on the commercial sector's allocation on a *percentage* basis. Under all of the options under consideration, the maximum potential loss to the commercial sector is 2.5% of it's initial allocation (Suboption B). Using a charter allocation of 11.29% of the combined quota and the 2001 halibut TAC, that translates to 546,587 pounds. Under Options 1 and 2, a 2.5% loss translates to 529,211 and 555,644 pounds, respectively.

Table 4.19: Impact of Community Set-aside Options on Commercial and Charter Halibut Quota in Area 3A under Issue 1, Option 3 Allocations[1]

Suboptions for Source of Set-aside[2]		Community Pounds	Commercial			Charter			
			Pounds	change[3]	% of combined IFQ	Pounds	change	% of combined IFQ	% above 1999 harvest[4]
No Set-aside		0	21,863,467	0	88.71	2,782,533	0	11.29	10.0%
	Set-aside								
	0.5%	123,230	21,801,852	-0.3%	88.46	2,720,918	-2.2%	11.04	7.5%
Suboption A:	1.0%	246,460	21,740,237	-0.6%	88.21	2,659,303	-4.4%	10.79	5.1%
Equal pounds	1.5%	369,690	21,678,622	-0.8%	87.96	2,597,688	-6.6%	10.54	2.7%
	2.0%	492,920	21,617,007	-1.1%	87.71	2,536,073	-8.9%	10.29	0.2%
	2.5%	616,150	21,555,392	-1.4%	87.46	2,474,458	-11.1%	10.04	-2.2%
	0.5%	123,230	21,754,149	-0.5%	88.27	2,768,621	-0.5%	11.23	9.4%
Suboption B:	1.0%	246,460	21,644,832	-1.0%	87.82	2,754,708	-1.0%	11.18	8.9%
Proportional	1.5%	369,690	21,535,515	-1.5%	87.38	2,740,795	-1.5%	11.12	8.3%
shares	2.0%	492,920	21,426,197	-2.0%	86.94	2,726,883	-2.0%	11.06	7.8%
	2.5%	616,150	21,316,880	-2.5%	86.49	2,712,970	-2.5%	11.01	7.2%
	0.5%	123,230	21,863,467	0.0%	88.71	2,659,303	-4.4%	10.79	5.1%
Suboption C:	1.0%	246,460	21,863,467	0.0%	88.71	2,536,073	-8.9%	10.29	0.2%
100% from	1.5%	369,690	21,863,467	0.0%	88.71	2,412,843	-13.3%	9.79	-4.6%
charter sector	2.0%	492,920	21,863,467	0.0%	88.71	2,289,613	-17.7%	9.29	-9.5%
	2.5%	616,150	21,863,467	0.0%	88.71	2,166,383	-22.1%	8.79	-14.4%

[1] Under Issue 1, Option 3, a halibut charter GHL of 11.29% in Area 3A is applied to the 2001 combined charter harvest and commercial halibut quota to determine the initial allocation to the existing charter sector. The GHLs are based on corrected 1996-1999 SWHS data.

[2] The Council may select a set-aside anywhere within the range of 0.5-2.5% of the combined commercial and charter halibut quota.

[3] These values represent the percent change in the actual poundage allocated to each sector under each suboption.

[4] The charter sector harvested 2.53 million pounds of halibut in Area 3A in 1999.

Under the charter allocation proposed in Option 3 (11.29% of the combined quota in Area 3A), implementation of a set-aside under Suboption A would result in a 2.2 - 11.1 percent (61,615 - 308,075 lb) decrease to the charter allocation. Suboption B, in which a proportional amount is taken from each sector, results in a 0.5 - 2.5 percent, or 13,912 - 69,563 pound, reduction to the charter sector. Suboption C, in which the entire set-aside is taken from the charter sector, results in a 4.4 - 22.1 percent (123,230 - 616,150 lb) reduction to the charter allocation.

The charter allocation under Option 3 represents the charter sector's average 1995-99 historical harvest. ADF&G data indicate that the charter sector harvested 2.53 million pounds of halibut in Area 3A in 1999. With no set-aside, implementing a 11.29% charter quota would allocate about 2.783 M lbs to the charter sector in Area 3A using the 2001 combined quota. Based on those numbers, the charter catch could increase by about **10.0%** over the 1999 harvest level before it would reach the quota. Table 4.19 shows that only Suboptions A and C for a set-aside would necessarily constrain the current charter harvest level. For example, a 2.5% set-aside adopted under Suboption A would reduce the charter sector's initial allocation to 2.2% below 1999 catch levels. Other points within the set-aside range under Suboption A would continue to provide a buffer for growth in the charter sector, from 0.2 - 7.5%, depending on the magnitude of the set-aside. Under Suboption B, there would exist a 7.2 - 9.4% buffer for growth above 1999 levels. Under Suboption C, the greatest impact of any of the options would be to reduce the allocation to the charter sector to 14.4% below 1999 catch levels.

Summary

In summary, there are two parts of the decision on the set-aside that are addressed in this section: the *source* and the *magnitude*. Among suboptions for the *source* of the community set-aside, Suboption C would be the least costly to the commercial sector, as the set-aside would be taken wholly from the charter sector's allocation. Suboption A would be the next best suboption for the commercial sector, whereby equal pounds are taken from the commercial and charter sectors. Because the commercial sector would be allocated the great majority of the combined halibut quota under any option under Issue 1, taking half of the set-aside pounds from the commercial sector results in a very modest reduction to their allocation. Suboption B is the most costly suboption for the commercial sector, as the set-aside would be taken proportionally from the commercial and charter allocations. Again, because the majority of the combined quota would be allocated to the commercial sector under any option under Issue 1, Suboption B would result in the majority of the set-aside pounds being reallocated from the commercial sector. Suboption B essentially means that the commercial and charter sectors each take the same percentage reduction to their allocations to create the set-aside.

By comparison, the least costly suboption for the source of the set-aside for the charter sector is Suboption B. Because the charter sector is allocated a smaller relative percentage of the combined quota than the commercial sector, Suboption B results in a smaller percentage of the set-aside being taken from the charter allocation. Suboption A is the next best suboption for the charter sector, in which equal pounds are taken from the commercial and charter sectors. Suboption C is the most costly suboption for the charter sector, as the entire set-aside would be reallocated from the charter sector.

Clearly, the larger the *magnitude* of quota set aside for Gulf communities (within the range of 0.5 - 2.5%), the greater the impact on the existing commercial and charter sectors. The decision points on the set-aside *magnitude* and *source* are interrelated, however, since the magnitude of the set-aside has different impacts on each sector depending on the source. For instance, the decision on the magnitude of the set-aside becomes irrelevant to the commercial sector if the decision on the source of the set-aside is to take the entire set-aside from the charter sector.

Should the charter IFQ program be approved, the decision on the charter allocation for each area is under Issue 1 (Options 1-3). Yet the decision under Issue 1 also affects the level of impact the set-aside has on the commercial and charter allocations, as discussed extensively in this section. The greater the initial allocation to the commercial sector, the lesser the impact of the set-aside on that sector. The same applies to the charter sector. Thus, in Area 2C, Issue 1, Option 3 is the most beneficial to the commercial sector since it allocates the greatest percentage of the quota (89.56%) to the commercial sector among all the options. In Area 3A, Issue 1, Option 2 is the most beneficial to the commercial sector for the same reason, allocating 90.18% to the commercial sector. Conversely, these two options are the most costly for the charter sector. In Area 2C, Issue 1, Option 1 is the most beneficial to the charter sector, allocating 13.05% of the combined quota to the charter sector. Similarly in Area 3A, Issue 1, Option 1 allocates the greatest percentage of the combined quota (14.11%) to the charter sector among all the options.

4.2.11.2.4.3 Implications of Set-Aside Amount for Communities

Recall that the primary goal of the set-aside is to enable a portion of interested individuals in underdeveloped communities to develop and sustain halibut charter operations and eventually purchase quota share. The set-aside is not intended to provide for halibut charter development for an unlimited number of operators in all qualifying communities, just as the community quota is not intended to sustain these start-up charter operations indefinitely. The Coalition proposal suggests structuring the community set-aside on a series of individual,

community, and cumulative program caps to address these issues and create a program that will allow for charter development in these communities without representing a long-term, permanent allocation to qualified individuals. This section provides an overview of the Coalition's proposed caps and the assumptions they are founded upon, in addition to an analysis of the quota requirements necessary to develop a halibut charter business in these communities, based on data presented earlier in Table 4.9. The information in this section is intended to help evaluate whether the set-aside range is adequate to meet community needs in Areas 2C and 3A.

Individual and Community Caps

The Coalition bases their proposed limits first on an estimate of the number or pounds of halibut that a mature charter operation averages per season. The proposal relies on anecdotal information to suggest that 10,000 lbs (or 500 fish) is a reasonable average, although there is a large range of "successful" operations based on several factors including: location, whether the business is full-time or part-time, and whether it's a multiple or single vessel operation. The Coalition also suggests that each community should have the opportunity for at least two residents to obtain the 10,000 lbs production standard, but that possibly as many as five mature operations are necessary to move a community from an underdeveloped to a developed charter halibut base. Based on these assumptions, the Coalition proposes an individual cap of 10,000 lbs and a community cap of 50,000 lbs (10,000 lbs/operator x 5 operators). Under this proposal, the individual cap of 10,000 lbs applies to all halibut charter quota, inclusive of any privately owned quota. In addition, the proposal specifies that no individual should receive more than 2,000 lbs of halibut charter quota in the first year and no more than 2,000 lbs each successive year, up to the 10,000 pound cap.

Although determining a cap amount is not part of the Council's final decision in April, it is important to analyze the development needs of a start-up and/or mature charter operation in each area in order to determine whether the proposed set-aside range is sufficient to cover the potentially eligible communities in each area. For example, a 0.5-2.5% range corresponds to 49,150 - 245,750 pounds in Area 2C and 123,230 - 616,150 pounds in Area 3A using the 2001 combined commercial and charter halibut quota. Of the 37 proposed communities, 23 occur in Area 2C, resulting in an allocation of 460,000 lbs to Area 2C if each community applies for and receives 20,000 lbs minimum to support two full-time charter operators. This amount far exceeds even the upper bound of the set-aside (245,750 lbs) for Area 2C, should the Council select a 2.5% set-aside. Thus, if the basis for the range of the set-aside is to be driven by the goal of establishing a mature halibut operation base in each community, the range will have to reflect the potential number of eligible communities in each area, the minimum number of qualified charter operators per community, and the average poundage per charter operator. Because of the inherent differences in halibut charter operations between Areas 2C and 3A, the Council may choose to establish different magnitudes of the set-aside in Area 2C and 3A. This point will be explored further in this section.

A related premise of the set-aside concept is that the eligible communities in each area are entitled to equal shares of the community quota allocated to that area. This means there is no subjective role for NMFS, the state, or the communities themselves in determining whether one community 'deserves' more quota than another. For example, if all 23 communities in Area 2C are eligible and apply for community quota, they are guaranteed a minimum amount of that quota, regardless of whether another eligible 2C community receives fewer quota shares during initial allocation of the general IFQ pool. Thus, it is necessary to evaluate the needs of start-up and mature charter businesses in eligible communities in each area, in order to determine the magnitude of the set-aside adequate to fulfill those minimum needs and to allocate quota share in a manner compatible with the number of proposed communities in each area.

Assumptions for Analysis

Several assumptions are made in order to project the implications of the set-aside range for communities and to determine the amount of community quota necessary to develop a halibut charter base in each area. The assumptions stem from the overall goal of the program, which, while remaining somewhat open to interpretation, the Council has indicated is to give communities enough quota to get charter businesses started (part-time), assuming that additional quota to support a mature, full-time business would be subsequently purchased from the general IFQ pool. The goal influences both the amount of poundage necessary to meet the resource needs of a start-up versus a mature operation, and the number of operators per community that constitute a halibut charter base. Because of the uncertainty surrounding this issue, several scenarios are captured in the tables in this section, based on two different goals (start-up versus full-time) and differing sets of assumptions regarding the quota needs to meet those goals. The assumptions in the Coalition proposal are presented along with those shown in Table 4.9, and are used in the following sections for each area.

Area 2C

Staff estimates of the halibut requirements for start-up and full-time charter operators for Area 2C target communities are shown in Table 4.9. Start-up operators in Area 2C are estimated to need 50 fish or 900 lbs, and full-time operators need 170 fish or 3,000 lbs. These figures are somewhat lower than the requirements proposed by the Coalition of 2,000 lbs per individual in the first year and an individual cap of 10,000 lbs. Note that the Coalition proposal also uses a slightly higher average weight of 20 lbs per fish than is estimated in this analysis. The tables in this section report the allocations for Area 2C using both sets of assumptions and an average weight of 18.0 lbs per fish. While quota needs may vary widely among communities and individuals depending on the type of business and other factors, some measure of average resource requirements is necessary to determine the adequacy of the set-aside range.

Table 4.20 shows the projected impact of the range of the set-aside on the target communities in Area 2C. The table indicates that, based on the set-aside range of 0.5 -2.5 percent, each of the 23 proposed Area 2C communities would receive a range of 2,137 - 10,685 pounds. Again, the determination of what magnitude(s) within the range is sufficient to fulfill the general requirements of a charter operation in these communities is dependent on the assumptions regarding the minimum pounds needed for a start-up and mature operation. The table shows the potential allocation to each community based on the requirements stated in the Coalition

Table 4.20: Projected Impact of Halibut Charter Set-aside on Area 2C Target Communities

Amount of Set-aside	**0.50%**	**1.00%**	**1.50%**	**2.00%**	**2.50%**
Total Set-aside Pounds	49,150	98,300	147,450	196,600	245,750
Lbs/community if 23 communities[1]	2,137	4,274	6,411	8,548	10,685
# of individual operations (vessels) supported if:					
start-up business needs 2,000 lbs	1.1	2.1	3.2	4.3	5.3
start-up business needs 900 lbs	2.4	4.7	7.1	9.5	11.9
mature business needs 10,000 lbs	0.2	0.4	0.6	0.9	1.1
mature business needs 3,000 lbs	0.7	1.4	2.1	2.8	3.6

[1]The amount of the set-aside is based on the specified percentage (0.5 - 2.5%) of the combined 2001 commercial and charter halibut quota.

[2]Twenty-three communities are currently on the draft list of eligible communities. Should the Council adopt a set-aside, this number will not be final until the follow-up regulatory amendment.

proposal (2,000 lbs/individual for start-up and 10,000 lbs/individual for a mature business) and as modified by the data presented in Table 4.9 (900 lbs/individual for a start-up and 3,000 lbs/individual for a mature business).

Assuming that an individual needs 2,000 lbs to meet the start-up requirements for a halibut charter business, the set-aside range would provide about 1 - 5 businesses with enough quota to do so. If a start-up business requires only 900 lbs, the range increases to 2 - 12 charter vessels per community. Clearly, the same amount of quota will support fewer mature businesses. If a mature business needs 10,000 lbs of quota, only the maximum set-aside of 2.5% (10,685 lbs) would suffice to support one mature business in each Area 2C target community. Assuming a mature business needs only 3,000 pounds, a 1.0 or 1.5% set-aside would support 1 and 2 businesses, respectively, a 2.0% set-aside would support almost 3 operations, and a 2.5% set-aside would support greater than 3 operations.

The calculations assume that all 23 proposed eligible communities in Area 2C will both qualify and apply for community quota share. Preliminary data indicate that potentially four of the Area 2C target communities with existing charter operations may receive sufficient halibut charter quota during initial allocation to preclude qualifying for community set-aside quota. In addition, there may be other barriers to entry associated with starting halibut charter operations in some communities related to raising capital and securing clients. Both of these factors may result in fewer than 23 communities applying for quota share, affecting the amount potentially available to the remaining qualified communities.

For example, if only 13 of the proposed communities are ultimately eligible, apply for, and receive community quota share, the amount of quota per community would increase to a potential range of 3,781 - 18,904 pounds, subject to whatever community cap is imposed. Accounting for this possibility, the number of halibut charter operations that the set-aside could potentially support could increase substantially. While the number of eligible communities is not at issue in this analysis, it is important to note that the impacts of the proposed set-aside range are dependent on the final number of eligible communities applying for quota share each season.

Table 4.20 shows the magnitudes within the 0.5 - 2.5% range for the set-aside that may meet the needs of underdeveloped communities, as well as the magnitudes that are either insufficient or in excess of community needs given the estimates of start-up and mature charter business requirements. This determination is also dependent on whether the goal of the program is to give these individuals enough quota for part-time, start-up businesses or mature, full-time businesses. The Coalition proposal states that the goal is to create a successful, mature halibut charter base in each community, however, the Council indicated during initial review that the set-aside should be based on the needs of a number of start-up charter businesses. In this case, analysis of the adequacy of the range would focus on the 2,000 lbs requirement as proposed by the Coalition, and/or the 900 lbs requirement as indicated by recent data.

A related question is how many unique halibut charter operations are necessary to transition a community from its underdeveloped state. The Coalition proposal suggests at least 2 individuals in each community should receive community quota, but that 5 businesses would likely represent a stable halibut charter base. Assuming two individuals in each of 23 communities need 10,000 lbs each to develop a mature operation, no amount of set-aside within the proposed range of 0.5 - 2.5% would meet those requirements. Assuming two individuals in each of 23 communities need only 3,000 lbs each to develop a mature operation, a minimum set-aside of 1.5% would be adequate. While any small amount of community quota may benefit the participant, the overall program goal is to provide for sustained community participation in the halibut charter industry and to enable communities to create a halibut charter economic base. If the intent is to overcome the initial barrier to enter the halibut charter industry by providing operators with enough quota to *start* businesses and enable them to eventually buy halibut QS, Table 4.20 shows that a set-aside of 1.0% or greater in Area 2C may be adequate

to accomplish a goal of establishing five start-up charter operations in each proposed eligible community (assuming 900 lbs meets the poundage requirement).

A phase-in approach is also under consideration in this analysis, and has been discussed previously in Section 4.2.11.2.2. Under the framework of a phase-in, Table 4.20 may also be used to determine how many charter businesses a first-year phase-in could support, based on the minimum requirements for the area, and how many start-up businesses could be supported thereafter. For example, under a phase-in and a Council decision to set aside 1.5% of the combined charter and commercial halibut quota, the Council may choose to start the program by allocating only 0.5% of the combined halibut quota to communities, and increase the set-aside by 0.5% per year as the fishery meets the set-aside limit. The intent may be to jump-start several new charter businesses, and increase the allocation as they develop. Under this example in Area 2C, the data indicates that starting with a 0.5% set-aside would provide only 1 or 2 operations to start-up in each community, depending on whether the assumed minimum requirement to get started is 2,000 or 900 lbs, respectively. As businesses develop, an area may reach their guideline of 0.5%, and the set-aside may bump up to 1.0% and eventually 1.5% depending on the number of individual applicants and their rate of growth.

During initial review and in it's February minutes, the SSC cautioned against placing too much reliance on the estimates of the number and pounds of halibut needed for start-up and mature operations presented in Table 4.9 and used in Tables 4.20 for Area 2C and 4.22 for Area 3A. The SSC noted that the estimation of "necessary" catch levels can arguably result in an overestimation or an underestimation, depending on the data used. In light of this issue, the Council recommended that a range of necessary catch levels be analyzed, in order to show how the *number of charter operators that can be supported* by the set-aside changes with the assumptions regarding the *amount of halibut needed* to support a business. While this task is not a veritable sensitivity analysis, the type of comparison made is similar. The concept is to show how sensitive the results are to changes in the data.

Table 4.21 below presents a range of necessary quota needs (in pounds of halibut) to support a halibut charter operation in Area 2C, from 1,000 - 15,000 pounds. The selected range is not based on any analysis of actual catch levels as in Table 4.20. Data points representing estimated quota needs of 3,000, 6,000, 10,000 and 15,000 lbs are highlighted as specific points requested by the Council during initial review. The table shows the number of charter businesses that could be sustained by the proposed set-aside, given the pounds of halibut quota necessary to support a business. Each of the five columns represent a specific set-aside percentage within the range under consideration in Issue 11: 0.5%, 1.0%, 1.5%, 2.0%, and 2.5%, and the corresponding number of pounds each Area 2C target community would receive under that set-aside if each of the 23 proposed target communities were eligible, applied for, and received an equal amount of set-aside quota in the annual allocation.

For instance, if a 1.0% set-aside was chosen for Area 2C, and the quota was distributed equally among the proposed 23 Area 2C target communities, each community would receive 4,274 lbs of quota. The table then shows the corresponding number of businesses that could be supported by that amount of set-aside quota in <u>each</u> community, depending on how much quota one assumes is necessary to support a halibut charter business (1,000 - 15,000 lbs). Using this example, if one assumes that 1,000 lbs is necessary to start a charter business, a 1.0% set-aside would support 4.3 start-up charter businesses in each community. Assuming that 2,000 lbs is necessary, a 1.0% set-aside would support half that amount, or 2.1 charter businesses in each community. Note that the resulting number of charter businesses is inversely proportional to the amount of halibut quota needed to support a business. Assuming a specific set-aside percentage, if the amount of halibut quota necessary to start a business is doubled, the number of charter businesses that set-aside can support is halved.

Figure 4.7 is a graphic representation of the values in Table 4.21. The figure illustrates that as the estimate of the amount of halibut quota needed to support a charter business increases, both the total number and the *marginal* number of charter businesses it can support decreases. For instance, under a 1.0% set-aside, the difference between assuming that a charter business needs 1,000 versus 2,000 pounds of quota is 2.2 businesses (4.3 - 2.1). Yet the difference between assuming that a charter business needs 14,000 versus 15,000 pounds of quota is negligible (0.3 - 0.3). Thus, as the estimates of the amount of halibut quota necessary to support a charter business increase, the data becomes increasingly insensitive to those changes. In Area 2C, given the proposed range for the set-aside and the relatively small allocations that could be made to each community, the number of additional businesses that the set-aside could support quickly becomes negligible as the halibut quota requirements increase. For instance, if a 1.0% set-aside is selected, any quota requirement greater than 5,000 lbs would result in less than one business supported by the set-aside.

Table 4.21: Projected Number of Halibut Charter Businesses Supported by Proposed Set-aside Range in Area 2C Target Communities

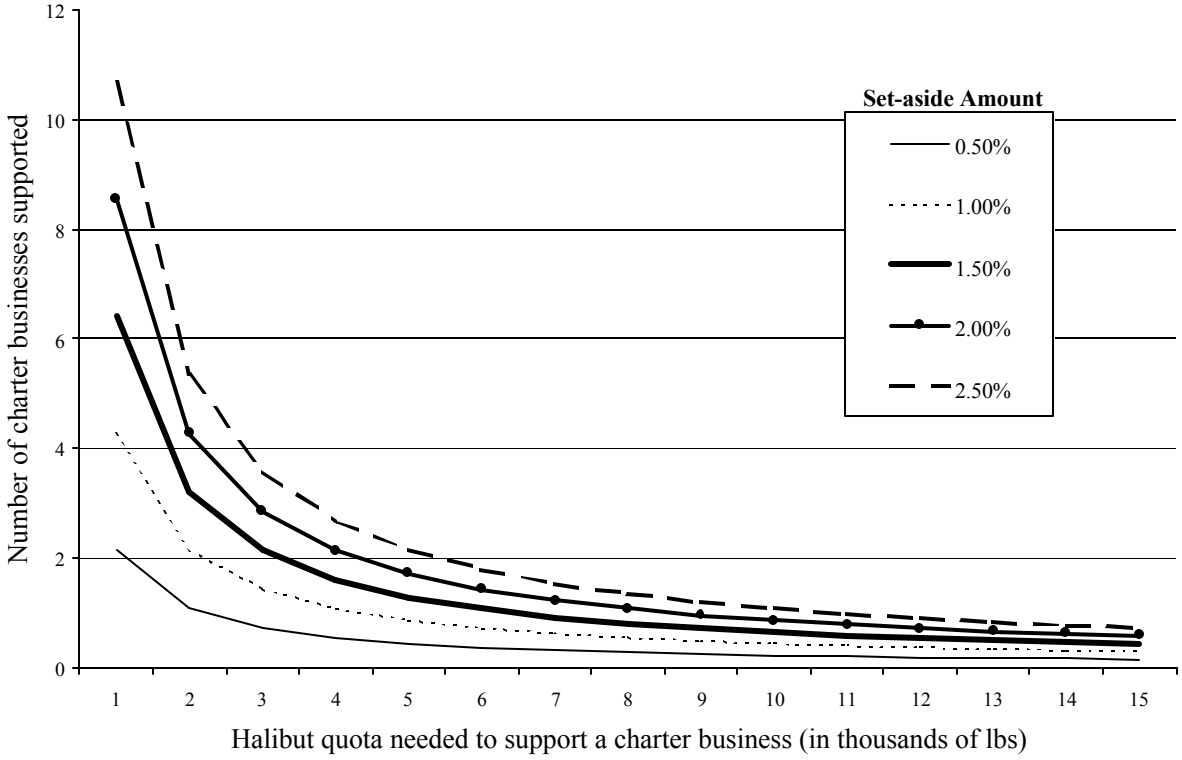
Halibut quota needed to support a charter business (in lbs)	Set-aside range and corresponding lbs/community in Area 2C[1]				
	0.5%	1.0%	1.5%	2.0%	2.5%
	2,137 lbs	4,274 lbs	6,411 lbs	8,548 lbs	10,685 lbs
	Number of charter businesses supported by set-aside				
1,000	2.1	4.3	6.4	8.5	10.7
2,000	1.1	2.1	3.2	4.3	5.3
3,000	**0.7**	**1.4**	**2.1**	**2.8**	**3.6**
4,000	0.5	1.1	1.6	2.1	2.7
5,000	0.4	0.9	1.3	1.7	2.1
6,000	**0.4**	**0.7**	**1.1**	**1.4**	**1.8**
7,000	0.3	0.6	0.9	1.2	1.5
8,000	0.3	0.5	0.8	1.1	1.3
9,000	0.2	0.5	0.7	0.9	1.2
10,000	**0.2**	**0.4**	**0.6**	**0.9**	**1.1**
11,000	0.2	0.4	0.6	0.8	1.0
12,000	0.2	0.4	0.5	0.7	0.9
13,000	0.2	0.3	0.5	0.7	0.8
14,000	0.2	0.3	0.5	0.6	0.8
15,000	**0.1**	**0.3**	**0.4**	**0.6**	**0.7**

[1]Under Issue 11, the Council may select a set-aside anywhere within the range of 0.5 - 2.5% of the combined commercial and charter halibut quota. Twenty-three communities are currently on the draft eligibility list for Area 2C.

The estimates discussed in this section do not account for the number of charter businesses already operating in the Area 2C proposed eligible communities. If the number of existing charter businesses is taken into account, it is possible that a lower magnitude of the set-aside would be adequate to develop a halibut charter base in each community. The analysis also does not account for other factors (such as client demand) that may limit the number of charter businesses in target communities.

Figure 4.7

Projected Number of Halibut Charter Businesses Supported by Proposed Set-aside Range in each Area 2C Target Community



Area 3A

Based on the information shown in Table 4.9, start-up operators in Area 3A are estimated to need 50 fish or 1,000 lbs, and full-time operators are estimated to need 310 fish or 6,000 lbs. Note that the 1999 average halibut weight is greater for Area 3A than 2C (19.2 lbs versus 18.0 lbs). The halibut charter quota requirements also vary between areas; a mature business in Area 3A is estimated to need 310 fish or 6,000 lbs, while the same business in Area 2C is estimated to need 170 fish or 3,000 lbs. These figures are somewhat lower than the requirements proposed by the Coalition. The tables in this section report the allocations for Area 3A using both sets of assumptions and an average weight of 19.2 lbs per fish.

Table 4.22 shows the projected impact of the range of the set-aside on the proposed eligible communities in Area 3A. The table indicates that, based on the set-aside range of 0.5 - 2.5 percent, each of the 14 proposed Area 3A communities would be allocated a range of 8,802 - 44,011 pounds. The table shows the

corresponding allocation to each community based on the requirements suggested in the Coalition proposal (2,000/individual for start-up and 10,000/individual for a mature business) and also as modified by the data presented in Table 4.9 (1,000/individual for start-up and 6,000/individual for a mature business).

Assuming that an individual needs 2,000 lbs to meet the start-up requirements for a halibut charter business, the set-aside range would provide 4 - 22 businesses with enough quota to do so. If a start-up business requires 1,000 lbs, the range doubles to about 9 - 44 operations per community. If a mature business needs 10,000 lbs of quota, the set-aside range could support nearly 1 - 4 mature businesses in each 3A community. Assuming a mature business needs 6,000 pounds, the range increases to about 1 - 7 operations per community. If the goal is to provide enough quota to a number of *start-up* charter businesses, the focus should be on the 2,000 lbs or 1,000 lbs requirement, as opposed to the amount of halibut needed to support mature operations.

Table 4.22 Projected Impact of Halibut Charter Set-aside on Area 3A Target Communities

Amount of Set-aside	**0.50%**	**1.00%**	**1.50%**	**2.00%**	**2.50%**
Total Set-aside Pounds[1]	123,230	246,460	369,690	492,920	616,150
Lbs/community if 14 communities[2]	8,802	17,604	26,406	35,209	44,011
# of individual operations (vessels) supported if:					
start-up business needs 2,000 lbs	4.4	8.8	13.2	17.6	22.0
start-up business needs 1,000 lbs	8.8	17.6	26.4	35.2	44.0
mature business needs 10,000 lbs	0.9	1.8	2.6	3.5	4.4
mature business needs 6,000 lbs	1.5	2.9	4.4	5.9	7.3

[1]The amount of the set-aside is based on the specified percentage (0.5 - 2.5%) of the combined 2001 commercial and charter halibut quota.

[2]Fourteen communities are currently on the draft list of eligible communities. Should the Council adopt a set-aside, this number will not be final until the follow-up regulatory amendment.

The information so far assumes that all 14 proposed eligible communities in Area 3A will both qualify and apply for community quota share. Preliminary data indicate that at least one of the targeted Area 3A communities with existing charter operations may receive sufficient halibut charter quota during initial allocation to preclude qualifying for community set-aside quota. This assumes that communities would be subject to a community cap, inclusive of any privately held quota. In addition, there may be other barriers to entry associated with starting halibut charter operations in some communities, such as equipment costs or lack of a client base. Both of these factors may result in fewer than 14 communities applying for quota share, which would affect the amount potentially available to the remaining qualified communities. The exact number of communities is not at issue in this analysis but would be determined in a trailing amendment should the Council decide to adopt a set-aside.

As discussed in the section relating to Area 2C, it is also necessary to estimate how many unique halibut charter operations would create a viable, successful halibut charter base in each community. The Coalition proposal suggests at least 2 individuals in each community should receive community quota, but that 5 businesses would likely represent a stable halibut charter base. Based on the above assumptions, a minimum set-aside of 0.5% would satisfy the needs of about 5 start-up operations in each Area 3A target community under a 2,000 lb requirement, and 9 start-up operations under a 1,000 requirement (Table 4.22). Again, if the number of *existing* charter businesses is taken into account, it is possible that a lower magnitude of the set-aside would be adequate to develop a halibut charter base in each community.

Table 4.22 also provides information relative to the decision of using a phase-in approach. For example, under a phase-in and a Council decision to set aside 1.5% of the combined charter and commercial halibut quota, the Council may choose to start the program allocating only 0.5% of the combined halibut quota to communities, and increase the set-aside by 0.5% per year as the fishery meets the set-aside limit. As businesses develop, communities may increase their requests to meet the 0.5% guideline, causing the set-aside to bump up to 1.0% and eventually 1.5% depending on the number of individual applicants and their rate of growth.

Again, because of concern about over or underestimating the halibut quota needs per individual operation in the target communities, Table 4.23 was generated to show how the results change in relation to a broad range of estimates. Table 4.23 presents a range of quota needs (in pounds of halibut) to support a halibut charter operation in Area 3A, from 1,000 - 15,000 pounds. Data points representing estimated quota needs of 3,000, 6,000, 10,000 and 15,000 lbs are highlighted as specific points requested by the Council during initial review. The table is presented exactly as in the previous section for Area 2C, showing the number of charter businesses that could be sustained by the proposed set-aside, given a range of pounds of halibut quota necessary to support a business.

Table 4.23: Projected Number of Halibut Charter Businesses Supported by Proposed Set-aside Range in Area 2C Target Communities

Halibut quota needed to support a charter business (in lbs)	Set-aside range and corresponding lbs/community in Area 3A[1]				
	0.5%	1.0%	1.5%	2.0%	2.5%
	8,802 lbs	17,604 lbs	26,406 lbs	35,209 lbs	44, 011 lbs
	Number of charter businesses supported by set-aside				
1,000	8.8	17.6	26.4	35.2	44.0
2,000	4.4	8.8	13.2	17.6	22.0
3,000	**2.9**	**5.9**	**8.8**	**11.7**	**14.7**
4,000	2.2	4.4	6.6	8.8	11.0
5,000	1.8	3.5	5.3	7.0	8.8
6,000	**1.5**	**2.9**	**4.4**	**5.9**	**7.3**
7,000	1.3	2.5	3.8	5.0	6.3
8,000	1.1	2.2	3.3	4.4	5.5
9,000	1.0	2.0	2.9	3.9	4.9
10,000	**0.9**	**1.8**	**2.6**	**3.5**	**4.4**
11,000	0.8	1.6	2.4	3.2	4.0
12,000	0.7	1.5	2.2	2.9	3.7
13,000	0.7	1.4	2.0	2.7	3.4
14,000	0.6	1.3	1.9	2.5	3.1
15,000	**0.6**	**1.2**	**1.8**	**2.3**	**2.9**

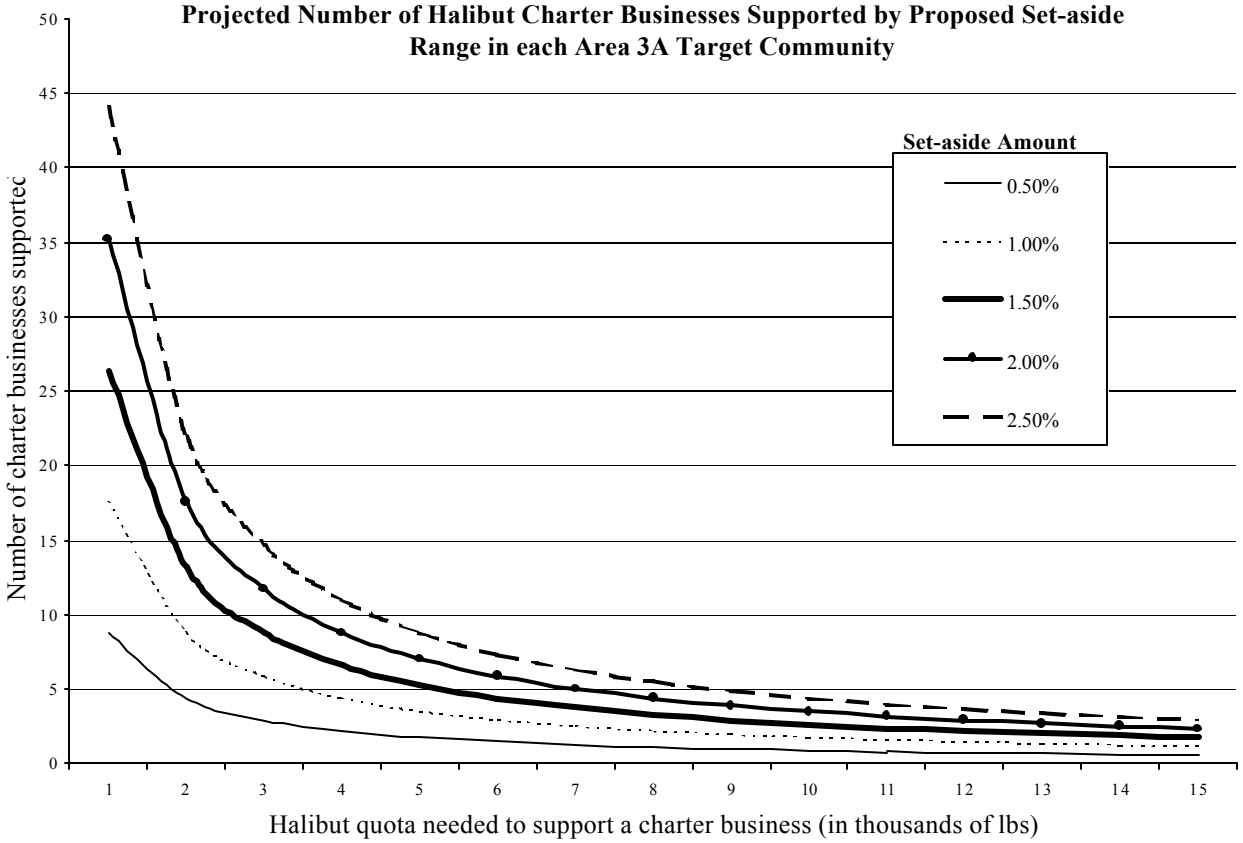
[1]Under Issue 11, the Council may select a set-aside anywhere within the range of 0.5 - 2.5% of the combined commercial and charter halibut quota. Fourteen communities are currently on the draft eligibility list for Area 3A.

For example, if a 1.0% set-aside was chosen for Area 3A, and the quota was distributed equally among the 14 target communities, each community would receive 17,604 lbs of quota. The table then shows the corresponding number of businesses that could be supported by that amount of set-aside quota in <u>each</u> community, depending on how much quota is assumed necessary to support a halibut charter business (1,000 - 15,000 lbs). Using this example, if one assumes 1,000 lbs is necessary to start a charter business, a 1.0% set-

aside would support about 17.6 start-up charter businesses in each community. Assuming that 2,000 lbs is necessary, a 1.0% set-aside would support half that amount, or 8.8 charter businesses in each community. Again, the resulting number of charter businesses is inversely proportional to the amount of halibut quota needed to support a business. Assuming a specific set-aside percentage, if the amount of halibut quota necessary to start a business is doubled, the number of charter businesses that set-aside can support is halved.

Figure 4.8 illustrates the relationship between the variables in Table 4.23: as the estimated amount of halibut quota needed to support a charter business increases, the marginal number of charter businesses it can support decreases. Thus, while the assumption regarding quota needs may be important at the lower end of the range, it becomes increasingly less important toward the higher end of the range. For instance, under a 1.0% set-aside, the difference between assuming that a charter business needs 1,000 versus 2,000 pounds of quota is 8.8 businesses (17.6 - 8.8). Yet the difference between assuming that a charter business needs 14,000 versus 15,000 pounds of quota is 0.1 businesses (1.3 - 1.2). Thus, as the estimates of halibut quota necessary to support a charter business increase, the results become increasingly insensitive to those changes.

Figure 4.8



Summary

To summarize, there are several sets of assumptions inherent in determining an adequate amount of community quota that should be clearly addressed. Contrary to the Coalition proposal, the Council may determine that the intent of the program is to give communities enough quota to support a number of *start-up* operations, assuming that additional halibut QS to support a full-time business would be subsequently purchased. Relative to that question is whether 2,000 lbs, 1,000 lbs, or some other amount of poundage is a reasonable estimate of quota needs for a developing operation in each area, and what number of operators per community the set-aside is intended to support in developing a halibut charter base. The range of options under consideration for this action is limited to 0.5 - 2.5% of the combined halibut charter and commercial quota, and these assumptions will be critical in determining whether any amount of set-aside within that range will be adequate to benefit the proposed eligible communities and meet the intended goal of the program. The analysis does not consider, however, possible limits on the total number of charter businesses in the target communities that the market, i.e. client demand, can support.

4.2.11.2.5 Break-even Analysis for Halibut Charter Businesses in Areas 2C and 3A

The Council requested that the analysis include a discussion of the administrative costs of the program in contrast to the breakeven point of a halibut charter business relative to the amount of allocation that may be made available. The breakeven analysis may also provide some guidance on the amount of halibut required to support start-up/part-time and mature/full-time charter businesses in Areas 2C and 3A. This section provides a simplified breakeven analysis based on the ISER (1999) guide and charter business survey data for operating expenses.

Estimated start-up and operating costs for charter businesses were provided in Section 3.4.3.2 based on the ISER (1999) survey. The survey (based on the 1993 operating year) had a sample size of 331 businesses, representing a 73% response rate from large firms and 27% response rate for other firms. Since the highest response rate was from the stratum of firms identified by regional biologists as the major guide or charter businesses in their regions, the results may be more reflective of these larger charter businesses and less representative of small and/or start-up charter businesses. This sample was reduced to exclude operators in the Arctic-Yukon-Kuskokwim and Southwest regions and exclude operators that specified species other than halibut as the target species. This reduced the sample from 331 down to 236. Statistics on operating expenses based on this sample are summarized in Table 3.71, including the mean, median, and percentile cutoff values for the total operating expenditures. The median and mean operating expenditures are $27,400 and $100,621 in 1993 dollars. The large difference between the median and mean is another indicator that the data may be biased by a number of very large charter businesses. Adjusting for inflation to 1998 (for consistency with charter trip pricing data), indicates median and mean operating expenses of $29,000 and $106,600 for charter businesses operating in Areas 2C and 3A.

Note the following weaknesses associated with this break-even analysis:

Several weaknesses with these statistics include the following: (1) the survey had a higher response rate for the more established businesses in each region and may be more reflective of larger charter businesses operating in major ports; (2) the survey included businesses providing guide services to anglers and businesses that provided transportation to fishing location and, thus, is based on a broader definition of "guide" than that used in the ADF&G guide registration program; (3) there is no break out of charter operators in Area 2C versus 3A; (4) there is no break out of businesses that only operate charterboats versus those that also provide transportation/lodging; and (5) there is no break out of businesses operating in major ports versus remote ports. Thus, a break-even analysis based on these operating expenses also reflects these weaknesses.

Table 4.24 shows the break-even analysis for charter businesses in Areas 2C and 3A, using the inflation adjusted median and mean operating expenses of $29,00 and $106,600 per year, respectively. Several other assumptions are made as follows: (1) charter trip prices in Areas 2C and 3A range from $150-$220 and $130-$190, respectively; (2) a typical trip in each area takes six clients; (3) average harvests per trip for Areas 2C and 3A are 3 fish/trip and 5 fish/trip, respectively; and (4) 1999 average weights of halibut harvested by charterboat clients in Areas 2C and 3A are 18.0 lb/fish and 19.2 lb/fish, respectively.

Table 4.24 Break-even Analysis for Charter Businesses in Areas 2C and 3A Based on Median and Mean Total Operating Expenses from ISER (1999) Guide and Charter Business Survey

	Operating Expenses		$/	#	#	fish/	#	
Area	1993 $	inf-adj $	client	clients	trips	trip	fish	pounds
2C	27,400	29,000	150	193	32	3	97	1,737
	100,621	106,600	150	711	119	3	356	6,399
	27,400	29,000	220	132	22	3	66	1,188
	100,621	106,600	220	485	81	3	243	4,365
3A	27,400	29,000	130	223	37	5	186	3,568
	100,621	106,600	130	820	137	5	683	13,120
	27,400	29,000	190	153	26	5	128	2,448
	100,621	106,600	190	561	94	5	468	8,976

Assumptions:

1. Operating expenses based on ISER (1999) median and mean values in '93 $.
2. Inflation adjusted to 1998 for consistency with pricing data using the PPI for the water transportation industry.
3. Assumes 6 clients per trip.
4. Pounds based on average 1999 weights of 18 lb/fish and 19.2 lb/fish for Areas 2C and 3A, respectively.

As shown, the halibut resource required to break even for a charter business in Area 2C ranges from a low of 1,200 pounds (using $220 per client and expenses of $29,000) to a high of 6,400 pounds (using $150 per client and expenses of $106,600). Similarly, the amount of halibut required to break even in Area 3A ranges from 2,400 pounds to 13,100 pounds. The range for Area 2C is somewhat lower and the range for Area 3A is somewhat higher than the amounts proposed by the Coalition of 2,000 pounds and 10,000 pounds for start-up and mature charter operators, respectively. On the other hand, if the median operating expenditure of $29,000 per year is more reflective of a small charter business, then only 1,200-1,700 fish in Area 2C and 2,400-3,600 fish in Area 3A may be needed to break-even. It is also possible that a start-up charter business

operates at a loss for the first few years (while a client base is being developed) and that actual harvest levels during the start-up phase would be lower than the break-even requirements.

Recall that the ranges for halibut requirements used in Section 4.2.11.2.4.3 (impact of magnitude of set-aside on communities) were based on average halibut harvests per vessel for vessels ranking in the first and second quartiles for Areas 2C and 3A (Tables 4.8 and 4.9). Based on these statistics, estimated halibut requirements for Area 2C are 900 lbs and 3,000 pounds for start-up and mature operators, respectively, and estimated requirements for Area 3A are 1,000 and 6,000 for start-up and mature operators, respectively. These amounts, along with the Coalition proposed amounts, are used in the analysis (and not the amounts suggested by the breakeven analysis) since the estimates are based on actual harvests of businesses operating in the communities among the 37 targeted by the set-aside. *Since the estimates based on the breakeven analysis may be less reflective of charter businesses operating in the target communities, they are not used in the analysis*. The breakeven analysis does suggest, however, that the ranges used to evaluate the implications of the set-aside magnitude for the 37 target communities are reasonable.

4.2.11.2.6 Suboption 2: Sunset Provision

This section provides an analysis of the longer-term implications of the community set-aside if there is (a) no sunset provision, (b) the program sunsets in 5 years, (c) the program sunsets in 10 years, and (d) participants in the program at the time of sunset would be allowed to continue participation within the guidelines of the program.

(a) No Sunset Provision

One of the main purposes of the community set-aside is to reduce an economic barrier to entry into the charter industry for certain communities that are relatively underdeveloped. Quota is set aside for qualifying individuals in eligible communities to use for purposes of starting and developing viable charter operations. As proposed by the Coalition, participants would be expected to eventually purchase halibut QS rather than rely on allocations from the set-aside indefinitely. Several provisions in the Coalition proposal are designed to encourage this outcome. First, there is a proposal to cap the amount of set-aside quota that an individual can receive to a maximum of 10,000 pounds, inclusive of any QS owned by the individual. Secondly, the proposal includes a community cap of 50,000 pounds, inclusive of all QS held by residents of the community. Finally, the proposal includes a 10-year limit on how long any individual can participate in the program. As individuals and/or communities reach these limits, set-aside quota may be made available for other individuals and/or communities.

It is conceivable that, in the long run, no more communities or individuals would qualify for an allocation from the set-aside. If so, the entire set-aside amount would roll back annually to the general charter/commercial allocation pool. If this were to occur, some of the short-run impacts of the set-aside would be reversed; some charter operators would no longer need to lease IFQs to meet client demand or could sell some QS. (In the commercial sector, the TAC would effectively be increased.) On the other hand, it is more likely that, as the remote-community charter sector matures, there is a relatively stable number of new entrants that qualify to receive set-aside quota. This stable level of new entrants reflects the normal rate of turnover resulting from a need to replace operators that go out of business (although previous estimates provided in the GHL analysis indicated a turnover rate of 50% between 1998 and 1999). In this case, if the amount of quota needed to account for turnover is below the set-aside allocation, the effects of the set-aside would be partially but not completely reversed since each year some portion of the set-aside would be allocated to communities. Thus, while individual participation may be limited, a community's participation would not necessarily be limited so

long as the community cap is not exceeded and a stable number of individuals continue to apply for set-aside quota each year.

It is also possible that some participants may continue to rely on set-aside quota until their 10-year limit approaches. Or, some community-members may feel compelled to take advantage of the "free" set-aside quota as long as it exists. This implies that a large number of individuals continue to request allocations from the set-aside each year. It is also conceivable that the set-aside quota artificially encourages too many individuals to start charter operations in the context of what client demand may actually be able to support. If so, the dynamics in the remote-community charter sector could become distorted since business decisions are being made on a false premise. Given the significant financial risks associated with starting a charter business, even with the set-aside, it seems unlikely that this type of behavior would be wide spread or prevail over an extended period of time.

Program Sunsets in (b) 5-years or (c) 10-years

A sunset provision of 5 or 10 years is more likely to ensure that the impact of the community set-aside is contained. Once the program ends, no halibut quota would be set aside for communities and the TAC for the charter and commercial sectors would be set as usual. The effects of the set-aside on the charter and commercial sectors would partially reverse although the allocations to all sectors (major-port, remote-community and commercial sectors) will likely differ from their starting points as a result of any transfers that have taken place. Any "back-end" changes in net economic benefits resulting from the sunset are potentially modest if community members successfully reduced their reliance on the set-aside in advance of the sunset date. For example, if a large portion of the set-aside quota is being rolled back because relatively few requests for set-aside quota are being made, then the impacts of ending the program are likely to be minor. On the other hand, if participants wait until the last minute, the sudden ending of the set-aside program could jeopardize at the margin some of the remote-community charter businesses. Similarly, a program sunset may negatively impact individuals that begin participation in the latter years of the program.

If participants know in advance that the program will sunset, they are more likely to make alternative provisions (i.e., purchase QS as they are able to). If the intent of the program is to provide short-term relief to certain communities so that adjustments to the charter IFQ program can be made gradually, it is possible that an explicit sunset clause is more likely to encourage participants to purchase QS rather than plan on long-term reliance. If, however, the intent of the program is to provide opportunities to communities to sustain participation in the charter industry on a long-term basis, a program sunset may place an unnecessary limit on the community (as opposed to the individuals in the community) rather than serve mainly to encourage individuals to reduce reliance on set aside quota.[30]

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[30]While the proposed community set-aside is structurally distinct from the existing CDQ program, some of the factors considered in the development of the CDQ program may have relevance to the community set-aside, to the extent that the set-aside is intended to provide for economic development opportunities. The NRC study (1999b) on Alaska's CDQ program specifically considered the issue of program duration in the context of an economic development program like the CDQ program. The committee noted the following:

> "The committee believes that the CDQ program must not be seen as a short-term solution to a long-term problem in western Alaska. Contemplation of termination of the program suggests a view of development as a terminal concept. There may be a perception in some quarters that there will come a time when the CDQ program can be declared to have achieved its goals, and be terminated. However, ..., the purposes for which the program were created, such as long-term economic development, are not terminal concepts."

The difference between 5 and 10 years is more of a policy call. The (major-port) charter and commercial sectors would likely prefer a 5-year sunset since the impact of the set-aside would be reversed sooner. For example, if a charter business owner knows that the community set-aside program will sunset in 5 years, he or she may lease quota rather than purchase QS to satisfy client demand for the 5-year period. Both sectors would likely prefer an explicit sunset rather than hope for a natural attenuation of the program since it provides greater certainty and allows for better long-term planning. Thus, the choice between 5 and 10 years is likely more important to the participating communities and should be based more on the number of years required to achieve the program's goals. For example, a 5-year program may be reasonable if it takes most charter companies 5 years to reach maturity. On the other hand, unforeseen circumstances may make it difficult for communities to fully develop mature charter businesses in a 5-year period. For example, a down-turn in the economy could impact the remote-community charter sector more sharply since it targets clients that are willing to pay more for a unique charter trip experience. If so, the development of charter businesses in the target communities could be delayed if the economy unexpectedly slumps. Thus, a 10-year program may be more reasonable from the communities' perspective to allow more time for the positive goals of the community set-aside to be realized.

(d) Upon Sunset, Allow Continued Participation Under Program Guidelines

At the February 2001 meeting, the Council added a suboption to allow those participating in the program at the time of the sunset (if chosen by the Council) to continue participation under the guidelines of the program. Thus, for example, if the program includes a 10-year limit on how long any individual may participate in the program, and an individual begins participation in the last year of the program prior to the sunset, the individual would be allowed to continue to request and receive set-aside quota for another nine years.

This suboption would result in a more gradual attenuation of the program and the program impacts on the other sectors. By allowing participants to continue under the guidelines of the program, this suboption would help mitigate some of the negative aspects of ending the program abruptly under a hard sunset. That is, a hard sunset could jeopardize the ultimate success of a new charter operator that begins participation late in the program. On the other hand, depending on other limits established under the program, especially limits on individual participation, this suboption would extend the effective life of the program. For example, if the program sunsets in 10 years and the program limits individual participation to 10 years, it is possible that the effective duration of the program would nearly double (to 19 years). The effective length of the program will depend on (1) years prior to sunset (if the Council adopts a sunset), (2) limit on years of participation, (3) number of individuals that begin participation late in the program, and (4) aggregate amount of set-aside quota such individuals are likely to request. Note that the limit on years of participation and many other details of the program would be developed as part of a trailing amendment should the Council adopt the community set-aside option.

4.2.11.2.7 Impact of Set-Aside on Quota Share Values

Long-term stability of quota share values is an important goal of any IFQ program. While holders of quota shares do not own the underlying asset (the fish), quota shares represent an important asset that has value.

With respect to this issue, the committee reached the following conclusion:

> "The CDQ program must be a long-term program because it deals with a long-term issue: development of healthy, sustainable communities in coastal Alaska. Long-term development requires stability in the underlying policy base so decision-makers can make choices that balance current and future needs."

Furthermore, the ability to use quota shares as collateral is enhanced if quota share values are stable. In addition to potential changes in QS values resulting from the overall charter IFQ program, the community set-aside may also impact QS values. The potential impact results from (1) the effective reallocation of quota from the charter and/or commercial sectors (depending on the source of the set-aside) to communities, (2) the annual roll-back of uncommitted quota shares, and (3) whether or not a sunset provision is adopted. Each effect is discussed qualitatively next.

Impact of Reallocation on QS Values

Each year, halibut quota from the charter and/or commercial sectors is set-aside for community use. Quota share values reflect rational expectations about the future value of the resource when utilized in each sector. If the underlying sector allocation (in pounds) is reduced each year by the amount of the set-aside, IFQ and QS transfer prices will adjust accordingly. On the one hand, the pounds of halibut represented by each QS unit declines if the sector's allocation declines. On the other hand, IFQ prices in dollars per pound rise if the sector's allocation declines as a result of a reduction in supply. Depending on the elasticity of demand in each sector, the increase in the per pound price may or may not offset the decrease in QS unit prices due to each QS unit representing fewer pounds (e.g., the effective dilution of each QS unit due to the set-aside). For example, if demand in the commercial sector is elastic, the percent increase in the price per pound would not offset the percent decrease in the sector's allocation and QS prices could decline.

In the short run, the potential decrease in QS prices may adversely impact current halibut QS holders in the commercial sector, especially those that have purchased their QS holdings or have secured loans by using their QS holdings as collateral. As a result of transfers since the initial issuance, current holders may be broken down into three categories: (1) those that only hold QS units received in the initial allocation; (2) those that hold QS units received in the initial allocation plus QS units subsequently purchased; and (3) those that only hold purchased QS units. Discussions with RAM indicate that it is difficult to determine the percentage of current QS holdings received by transfer (i.e., purchased) versus received in the initial allocation (personal communication with Jessica Gharrett, 1/21/01). RAM estimates, however, that as of year-end 2000, there were 901 holders of QS (76.5% of whom are Alaskans) who did not receive any QS in the initial allocation but now hold QS as a result of transfers. For example, as of year-end 2000, such individuals held 12,136,343 QS units for Area 2C and 29,187,521 QS units for Area 3A. In addition, RAM indicates that a relatively large percentage of outstanding QS units have one or more liens against them, a measure of the extent that such QS units are being used as collateral for loans (although it is not possible to discern the purpose of the loans). In either case, the community set-aside has the potential to negatively impact current holders of commercial halibut QS. Public testimony may provide the Council with further indication of the magnitude and dollar value of this effect.

Impact of the Roll-Back and Phase-In on QS Values

Since the TAC for each sector typically changes each year (due mostly to biological considerations), the amount of fish represented by each QS unit also fluctuates. As a result, QS prices fluctuate as well. The annual roll-back adds another source of fluctuation in the year's TAC. If the amount of set-aside quota rolled back each year changes in an unpredictable fashion, it will be more difficult to predict the impact of the set-aside on the year's TAC. This introduces another source of variability in QS prices. To the extent that a phase-in reduces the amount of quota rolled back each year, it may serve to reduce fluctuations in QS prices due to the community set-aside.

Impact of the Sunset Provision on QS Values

Quota share values take into account the long-term prospects for the sector. An explicit sunset provision would add an extra element of certainty by limiting the life of the community set-aside. Without a sunset provision, quota shares may be priced as if the community set-aside represents a permanent allocation. With a sunset provision, quota share values may reflect the fact that the set-aside is a temporary allocation.

4.3 Alternative 3. Moratorium

The Council is considering implementing a moratorium on new entry into the halibut charter fishery as an alternative to the IFQ program discussed in Section 4.2 or the status quo in Section 4.1. Should the Council decide to implement a moratorium, it would still have the option of developing an IFQ program in the future. The moratorium options for determining who qualifies for the program are the same seven options selected for the IFQ program. Other elements of the moratorium program are carried forward from the GHL analysis (NPFMC 2000). Expected impacts of a moratorium are also taken from that document and other limited entry analyses prepared for the Council and others are included by reference (NPFMC 1992 and NPFMC 1995).

It is assumed that if the Council approves a moratorium, it would not alter the GHL amendment package that it has approved to be forwarded to the Secretary of Commerce. All of the proposed restrictions on the halibut charter fishery that were included as part of the GHL program would remain in place. The result of that assumption is that the GHL is likely to be more of a constraint to guided anglers than the moratorium. This is especially true if the requirements for earning a moratorium permit allow charter operators with limited history in the fishery to qualify. These vessels would be able to either expand their operations at the expense of other charter operators or sell their charter license to another person wishing to enter the fishery. All this would occur under the GHL quota split between the commercial and charter sectors.

Depending on the number of licenses that were in excess of those actively being used in the fishery, the value of a license could vary substantially. If there are many licenses on the market their value could be relatively low. Economic theory indicates that the more tightly constrained the initial allocation of permits, the higher the value they will have, especially under the GHL program.

Charter operators could benefit from a moratorium because it would limit the overall number of persons that could operate in the halibut charter fishery at one time. However, if the number of moratorium permits results in a level of capacity that greatly exceeds that needed to supply trips to guided anglers under the GHL, then the value of permits would be relatively low. Low permits values may not prevent persons that wish to be full-time participants in the fishery from buying the permits held by persons that place a lower value on them. So while the overall number of persons (vessels) in the fishery is limited, there is still room for competition to increase among the charter operators as permits that were held by persons not involved in the fishery on a "full-time" basis become more fully utilized.

When the Council originally considered various management alternatives, which resulted in the 1997 GHL decision, a moratorium on further entry in the charter fisheries was included in the suite of alternatives. At that time however, data limitations precluded an initial determination of the number of truly active halibut charter operations. Salient points from that assessment include the following: (1) IPHC licenses for charter operations are low cost and easily obtained; (2) possession of a license is not necessarily an indicator of active participation in the fishery; (3) some active participants in the fishery may not have obtained the IPHC license, but may have other indicators of participation such as Alaska business licenses; (4) Coast Guard data on licenses are not computerized, nor are they specific to the activity of halibut fishing, or even chartering in

general; and, (5) ADF&G guide registration files do not differentiate between halibut chartering and chartering for other species such as salmon.

Given the likely number of qualifying vessels under any scenario, it was also unlikely that a moratorium would constrain the charter harvest; i.e., there was already an excess number of vessels relative to the existing or projected demand for charter trips. For example, information from the 1997 GHL analysis (conducted by ISER and Council staff) indicated that 1,998 IPHC licenses were issued in 1996, while the study also indicated that the entire 1995 charter catch could have been taken by 402 'six-pack' charter vessels, each operating at a 50% load factor (i.e., 75% of available days at 66% seat capacity). The number of IPHC licenses issued had grown from 1,481 in 1993; 1,679 in 1994; 1,926 in 1995; to 1,998 in 1996. These numbers may not be an accurate reflection of the actual growth of the charter industry, as some licenses were likely obtained (they are easy to obtain at no cost), but not necessarily fished, due to the Council's announcement of potential limited entry in 1993. A cross match of IPHC licenses for 1996 against ADF&G sport guide registration files resulted in a match of 1,117 vessels, still far greater than ADF&G estimates of between 500 and 650 'active' charter operations. The researchers at ISER, coincidentally, had estimated an active charter fleet of 518 vessels at the time of the 1997 study.

Given that the number of vessels likely to qualify under a moratorium would be greater than the number required to harvest the GHL, it appears that the status quo constraints will have a greater impact on charter fishery clients (guided anglers) and commercial halibut fishermen than the moratorium. However, the moratorium may be desirable from the charter owners' perspective because it will limit growth in terms of the number of competitors they face in the industry.

Under an inclusive moratorium program, guided anglers should not be negatively impacted in a substantial way relative to the status quo. The GHL will likely slow the harvest of halibut by guided anglers before the moratorium would be binding enough to prevent anglers from hiring a licensed guide. Without a GHL the moratorium could become binding and drive-up the price of charters, once charter operators reach "full" capacity. However, if the requirements to earn a moratorium permit are not too strict, as most of these programs have been in the past, it could be many years before the demand for trips would increase enough to drive-up the price under the pre-GHL management system.

At the time of final action for the original GHL amendment in 1997, the Council recognized that a logbook program was being developed by ADF&G for implementation in 1998 which would provide the kinds of information on participation that were heretofore lacking. Since 1997 the Council and its Halibut GHL Committee has developed GHL management measures, alternatives for an IFQ program, and alternatives for a potential moratorium on the charter fleet. Based on those discussions the following area-specific (2C/3A) moratorium alternatives (other than those listed under the "Years of Participation" section which taken from the IFQ qualification criteria in this analysis) were identified for consideration and have been carried forward in this amendment package.

Proposed Gulf of Mexico moratorium on sport charter vessels

The Gulf of Mexico Fishery Management Council is considering implementing a moratorium on new charter boats entering in the reef fish and coastal migratory pelagic fisheries (GMFMC 2001). It is contemplating this measure because of the overfished status of several of the major stocks targeted by the recreational sector and the continuing expansion of the recreational for-hire sector. The amendment will principally limit any future expansion while the Council considers the need for a more comprehensive limited access system.

In some cases, the Gulf Council has selected preferred alternatives for the development of its moratorium. It wishes to establish a 3-year moratorium on the issuance of charter vessel permits. It also would create a new charter vessel/headboat permit for the Gulf EEZ which will include Class 1 and Class 2 vessel endorsements for the reef fish and coastal migratory pelagics. For some species, a vessel decal for permitted vessels will be required. Several criteria for qualification were defined based on time in the fishery and dependence on the fishery in revenue terms. Class 1 endorsements will be transferrable while class 2 will not. Transfer of permits is allowed between vessels but without any increase in the number of passengers that can legally be carried under the U.S. Coast Guard safety certification, i.e., can be transferred to vessels certified to carry equal or fewer passengers. Permits that are not renewed (or permanently revoked) will not be reissued by NMFS during the moratorium. All vessels holding a moratorium permit must register for a survey that will allow monitoring of catch and participation. Failure to comply will result in permits not being issued to that vessel the following year.

State position on area-wide moratorium

A temporary moratorium or license limitation system for halibut charters in IPHC regulatory Areas 2C and 3A would give the Council and the Board time to solicit public opinion regarding halibut management options in these regulatory areas. It would also allow for more time to develop local area management plans within each regulatory area that would incorporate public opinions and considerations. The diversity in the charter fisheries in Areas 2C and 3A can best be dealt with at the local level, as a "one size fits all" approach is probably not the best solution. This would also allow the Council and the Board additional time to consider impacts on species other than halibut that may occur due to restricted access to the halibut fishery.

The State does not, at this time, support a long-term moratorium for Areas 2C or 3A, whether the areas are combined or separated. There is currently no State constitutional authority for any form of limitation system on recreational anglers, including the charter fleet. Any proposed moratorium the Council may implement for halibut must take into account the ripple effects on other species that would be targeted by the charter fleet, such as increased participation in salmon and groundfish charter fisheries (see Section 4.2.1).

This concern, along with the concern that charter operations and facilities are in very different stages of development in areas across the State, compels the State to oppose any form of state-wide or IPHC area-wide moratorium or license limitation system on a permanent basis.

4.3.1 Years of participation

Option 1. Initial issuees who carried clients in 1998 and 1999 and who submitted ADF&G logbooks for an active vessel[31] (as received by ADF&G by February 12, 2000)

Option 2. Initial issuees who carried clients in 1998 or 1999 and who submitted ADF&G logbooks for an active vessel (as received by ADF&G by February 12, 2000)

Option 3. Initial issuees who carried clients prior to June 24, 1998 and who submitted at least one ADF&G logbook for an active vessel (as received by ADF&G by February 12, 2000)

[31]Active vessel is defined as having turned in one ADF&G logbook page with positive catch or effort. ADF&G Guide and Business registration is required of bare vessel lessees only. Neither CFEC vessel registration nor IPHC licensing would be required of bare vessel lessees.

Option 4. Initial issuees who carried clients four out of five years between 1995-1999 as evidenced by IPHC, CFEC , and ADF&G business and guide documentation for 1995-99 and submitted logbooks for an active vessel in 1998 and 1999

Option 5. Initial issuees who carried clients four out of five years between 1995-1999 as evidenced by IPHC, CFEC and ADF&G business and guide documentation for 1995-99 and submitted logbooks for an active vessel for either 1998 or 1999

Option 6. Initial issuees who carried clients three out of five years between 1995-1999 as evidenced by IPHC, CFEC , and ADF&G business and guide documentation for 1995-99 and submitted logbooks for an active vessel in 1998 and 1999

Option 7. Initial issuees who carried clients three out of five years between 1995-1999 as evidenced by IPHC, CFEC and ADF&G business and guide documentation for 1995-99 and submitted logbooks for an active vessel for either 1998 or 1999

Suboption: Require that initial issuees be currently participating (meeting all legal requirements including filing a logbook) during the season prior to final Council action (currently May-September 2000) and claimed trips must have been under the operation of a person holding a valid U.S. Coast Guard license.

Recall from the IFQ discussion on qualification criteria in Section 4.2 that the number of persons meeting the criteria listed in the seven options, and therefore the number of persons eligible to receive an allocation at the time of initial issuance, is difficult to determine. Under a moratorium the Council is considering issuing moratorium permits to vessels as well as owners/lease holders of vessels. Therefore the numbers of vessels are reported in addition to the best estimate of the number of persons that would qualify under each option. Options 1 through 7 are predicated on combinations of ADF&G logbook documentation in addition to other data sources. Therefore, the logbook database represents the starting point for establishing the potential number of participants in the halibut charter fishery. Though the language in each option states that at least one logbook entry must be submitted, the Council has expressed some concern over the type of participation that should be considered, that is, whether a submitted logbook form pertains to halibut versus fishing for other species. At its October 2000 meeting, the Council opted to consider logbook records for all vessels deemed active, irrespective of the species targeted. This decision stemmed from several problems in the logbook database reported in the preliminary analysis, which makes it difficult to ascertain halibut effort.

A number of combinations of catch and effort criteria could be used as a starting point to determine moratorium qualification. The Council elected to base qualification on alternatives that rely on catch and participation. Table 4.25 (which is Table 4.3 repeated) shows how Options 1 and 2 would limit the number of qualifiers. The table begins with the total number of persons fishing in 1998 and 1999. These numbers would not completely capture the intent of the Council if they elect to include bare vessel lessees in the initial allocation. Because leases are private contracts entered into by individuals, and information on the number of vessels that were leased in this manner is not available. If the Council were to base the qualification criteria on the activity of the vessel, those numbers are reported under the 2C and 3A "Vessels" columns. It is obvious from this table that some vessel owners own more than one vessel. Those owners would be issued a permit for each vessel they own that meets the selected criteria.

Table 4.25: Projected number of initial QS recipients under each qualification option.

Participation Criteria	Projected Number of Qualifiers			
	2C - Owners	**2C - Vessels**	**3A - Owners**	**3A - Vessels**
Option 1: 1998 and 1999	–322	–544	–333	–444
Option 2: 1998 or 1999	–539	–765	–568	–674
Option 3:	539 > **x** >367	765> **x** >533	568 > **x** >366	674> **x** > 427
Option 4:	< 322	< 544	< 333	< 444
Option 5:	< 539	< 765	< 568	< 674
Option 6:	< 322	< 544	< 333	< 444
Option 7:	< 539	< 765	< 568	< 674

Note: The number of qualifiers under Options 6 and 7 will very likely be greater than under Options 4 and 5, respectively.
Source: ADF&G Logbook data

4.3.2 Qualification Based on Owner or Vessel History

Option 1: owner/operator or lessee (the individual who has the license and fills out logbook) of the charter vessel/business that fished during the eligibility period (based on an individual's participation and not the vessel's activity)

Option 2: vessel's history during the qualification period

Evidence of participation

- mandatory:
  IPHC license (for all years)
  CFEC number (for all years)
  ADF&G logbooks

- supplementary:
  Alaska State business license
  sportfish business registration
  insurance for passenger for hire
  ADF&G guide registration
  enrollment in drug testing program (CFR 46)

A primary decision associated with the moratorium alternative is whether qualification would be based on the activity of a *vessel,* as opposed to the activity of the *operator* of that vessel. Pursuant to that decision is whether the moratorium permit would be vessel-specific, or person-specific. The IPHC licenses vessels, and each license application lists the name of the vessel's owner and the name of the captain(s) if they are different. The application contains blanks for two captains' names and addresses. ADF&G logbooks provide information on both the vessel and the vessel owner.

The following example, borrowed from the 1997 GHL analysis, may illustrate the importance of the distinction between issuing the permit based on the person's versus the vessel's history: Person "A" operates the 'six-pack' vessel "Halibut 1" in the charter fishery from 1995 through 1997, but then purchases a larger, more

modern vessel - the "Halibut 2" - in 1998 and fishes that vessel in 1998 under the logbook program. The Council chooses an option requiring 1998 participation, based on a vessel's participation history. "A's" new boat does not qualify; meanwhile person "B", who never fished prior to purchasing the "Halibut 1" from "A", did make a trip or two in 1998 using the logbook, and finds himself with a moratorium qualified vessel. This approach was used in the Council's groundfish license limitation program; i.e, qualification was based on a vessel's history, but the permit was issued to the owner as of June 1995, the date of the Council's decision. In that case, transfers up to that date were to be recognized in the permit issuance process (if a valid contract exists), and the fisheries were already operating under a moratorium where transfers of vessels typically included explicit disposition of catch histories. If the permit was issued to the person making the landings, then "A" would have been issued the permit to continue his charter operation, while "B" would not receive a permit.

If the allocation is made to persons, the issue of who would be granted the moratorium permit may also become complicated. For example, "A" is the owner of a lodge that specializes in halibut charters. As the popularity of "A's" lodge grew, he hired skippers to run the charterboats for his lodge. He continued running the lodge, booking the charters, and transacting all the business dealings for the charters. He then hired five friends to use his boats to take his clients fishing. His friends basically served as "A's" captains. However, they were required to get the IPHC licenses for their specific boat and keep it in good repair. They were then paid a flat rate by "A" for each trip plus all the tips from the clients. This arrangement has worked well for all involved since 1995. The Council then decided to issue permits to the vessel's current owner. "A" receives five charter licenses and the captains must continue working for "A" or they cannot charter for halibut. If the permit was issued to the persons actually applying for and fishing the IPHC licenses, then "A" would not be issued any charter licenses for his lodge, and would need to contract with his former captains. However, his former captains would have the option of taking their permit and applying it to another lodge owner's boat who is willing to pay more. If "A" had contracted with persons who owned their boats, he would not receive a permit under either scenario. If the people he contracted with then left his lodge to start their own business, he would need to hire other captains with their own permits or purchase permits for himself.

The approach outlined in the Council's alternatives would issue permits to owners/operators (or leaseholders), and restrict the number of vessels that may be used under that permit, but not make the permit specific to any particular vessel. Under this approach, each vessel within a given operator's fleet would still have to carry some type of proof of qualification, for enforcement purposes. Because the IPHC licenses vessels by owner and captain, it is possible the Council would consider licensing vessels based on a person's history. This approach would allow conflicts arising from vessel sales to be minimized. A permit would be based on a person's fishing history and not that of the vessel he currently owns, however when he applies to the CFEC for his permit he would indicate the boat on which he will be fishing the permit. This approach issues the permit to owners/operators, and restricts the number of vessels that may be used under that permit, but does not make the permit specific to any particular vessel. Each vessel within a given operator's fleet would still be required to carry some type of proof of qualification, for enforcement purposes. The main area of resolution for the application and appeals process would be identification of lease situations.

It was the committee's intent that permits be issued to persons and not vessels. It then defined person as the business owner or lease holder. While it may be more difficult to track persons across different data sets, it does reduce the problems associated with people using different vessels at various times during the qualifying period. For example, the transfers of fishing history would not be an issue if a vessel is bought or sold. The problems associated with when a person should be issued a license are numerous, but they can be overcome. Recall that the IPHC license has a field for the name of the vessel, the ADF&G vessel number, Coast Guard documentation number, the vessel owner's name, the captain's name, and the license type (sport only or both sport and commercial). The only field that has information in every observation is the license type. The other

fields are blank some of the time. A few examples will illustrate some of the problems encountered after briefly studying the 1995, 1996, and 1997 IPHC license files.

5) In one case Fred Smith is listed as the captain on five IPHC vessel licenses during 1995 and 1996, but in 1997 is not listed as the captain on any licenses. During 1997 Kim Smith is listed as the captain of the same five vessels that Fred Smith captained during 1995 and 1996, but did not hold a license in either 1995 or 1996. No owner was listed on the IPHC license for any of these five vessels. The question is, should any licenses be issued if the requirement is that a person held an IPHC license each year between 1995 and 1997?

6) Toney Z. Smith was listed as the owner of a vessel in the IPHC license file during 1995, but not 1996 or 1997. However, a Tony Z. Smith was listed as the owner of the same vessel during 1996 and 1997, but not 1995. It is likely that this is the same person and he should be given credit for holding a license each year. Interestingly, Peter F. Smith is listed as the captain of Tony's boat each year. Peter is also listed as the owner of four other vessels (each year between 1995 and 1997). So according to IPHC files, Peter was the captain of Tony's boat and owned four boats of his own. So, Tony may qualify for one license and Peter, four.

7) Kelly Smith is listed in the IPHC vessel files as a vessel owner and captain in 1995 and 1996. In 1997 she is only listed as a captain. William Jones is listed as the owner in 1997. Should Kelly be issued a license based on participation in each year?

Other grey areas, in terms of who should be issued a permit, may be encountered if an alternative that includes data before 1998 is selected. These situations will have to be resolved as part of an application and appeals process. It is expected that RAM would be able to resolve any of these disputes as part of their appeals process.

4.3.3 Vessel upgrade

Option 1: license designation limited to 6-pack, if currently a 6-pack, and inspected vessel owner limited to current inspected certification (held at number of people, not vessel size)

Option 2: allow upgrades in Southeast Alaska (certified license can be transferred to similarly sized vessel)

Vessel upgrades considered by the committee dealt with the number of passengers that could be carried by a vessel. It was the consensus of the committee that the permits would be limited to six clients per vessel (except perhaps for existing vessels that are licensed for more than 6 passengers). The other option listed that was identified by the committee was to allow (grandfather) larger vessels from Southeast Alaska that are *currently* limited to six-pack licenses to upgrade and carry more than six clients at a time. By limiting the number of passengers a charter could carry, upgrade restrictions like those placed on the commercial fisheries may not be needed. Recall that under the groundfish and crab moratorium there is a limit on vessel length increases (20% LOA). Other limits on increasing the vessel's horsepower or changing gear were also considered for the commercial fishery, but may not make as much sense in the context of charter fisheries. The overwhelming majority of vessels in the charter fleet are 'sixpack' vessels that may take up to six persons per trip. The 'sixpack' designation would serve as an effective limitation relative to the issue of vessel replacement and upgrades - as long as the permits are still restricted to vessels that may carry a maximum of six passengers per trip, with each person limited to two fish. A six-line limit and a limit on lines to the number of paying passengers are further restricting charter harvest in Southeast Alaska.

There are some vessels in the fishery that are not restricted to the 'sixpack' license, and are operated by persons with, for example, 100 ton Master's Licenses. There may be little practical value in attempting to limit upgrades by these larger vessels, assuming that they are not likely to carry more than 20 passengers per trip under any circumstances.

4.3.4 Transfers

Any limited entry program will include allowances for transfers of permits. The recommendation of the Halibut Charter Work Group was to allow transfers of vessels with or without the associated moratorium permit. This is similar to the way the groundfish and crab moratorium worked, and similar to how the current license limitation program works. Such transfers would be subject to the upgrade restrictions discussed above. In the case of the charterboat fishery, two types of transfers may need to be accommodated: (1) transfers in the traditional sense - from one owner/operator to another, and (2) 'temporary' transfers of the permit from one vessel to another in the event of vessel breakdowns, for example. This type of transfer would be unnecessary if the permits are owner-specific, as opposed to vessel-specific.

4.3.5 Duration for review

Option 1: tied to the duration of the GHL

Option 2: 3 years

Option 3: 5 years (3 years, with option to renew for 2 years)

The Halibut Charter Working Group recommended that any moratorium should be equal in duration to the GHL. A short-term moratorium may be useful in providing a time window for the Council, and other management agencies, to develop more specific management programs geared toward specific regional concerns. However, a short-term moratorium would not likely restrain growth (catch) by the charter fleet, but it may serve other management objectives such as providing a more stable business environment for the charter fleet. The GHL Committee, by consensus, recommended the option of keeping the moratorium in place as long as the GHL remains in effect. If the Council chooses this option, the moratorium and GHL would be permanent, and would require further Council action to amend the program before the moratorium would cease. It also means that the Council would need to take action to keep the moratorium, if they decide to drop the GHL in the future. Other options recommended by the Committee were to sunset the moratorium after three or five years (three years, with an option to renew it for two additional years). These options would allow new entry even if the fishery were still operating under the GHL.

4.3.6 Associated Decision Points

<u>Moratorium vs Licenses</u>

By some definitions, a moratorium is a temporary 'time-out' management measure, often used as a precursor to further management measures, including additional limited entry alternatives. In considering a moratorium on new entry to the charter fleet, the Council needs to determine the appropriate duration of the moratorium, which is at least somewhat dependent upon future management intent. A long-term, or indefinite, moratorium is in effect a license limitation program. The information in this analysis indicates that any moratorium on this industry may qualify more vessels than are currently 'active,' and likely more than are necessary to accommodate client demand.

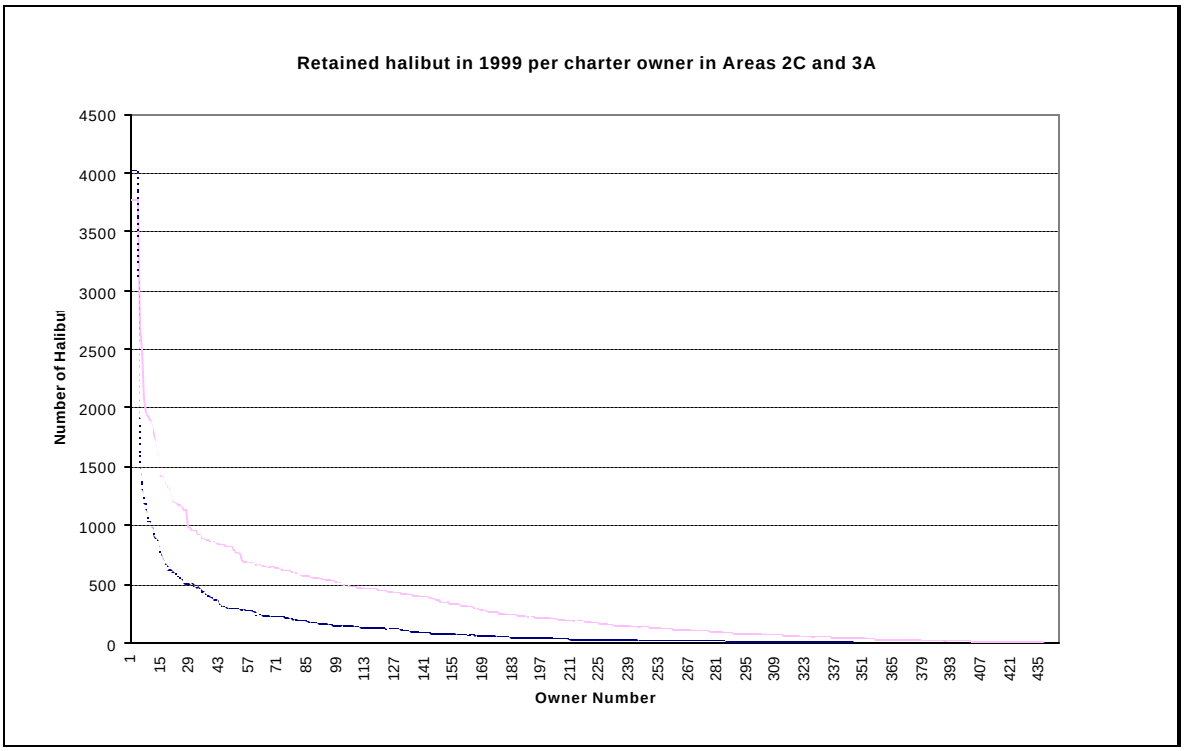
Other provisions

Several other provisions were also considered as part of a moratorium. These included the concept of requiring a minimum number of days fished or a minimum number of pounds of halibut caught to qualify for a permit. This concept was rejected by the committee because they felt it would be difficult to separate salmon from halibut effort. However, the ADF&G logbooks break out effort, harvest, area fished for bottomfish (halibut) and salmon, and will allow analysts to determine if a skipper fished for halibut on any given charter trip and where fish were caught. The logbooks list the number of days that halibut were caught on a charter. This does not necessarily mean the entire trip targeted halibut, it would only prove that halibut were caught. It is also possible that a charter could have gone fishing with the intent of targeting halibut, but did not record any landings. That trip would not likely count towards qualification. Yet with some simplifying assumptions about what constituted a halibut trip in 1998, it may be possible to determine if the minimum number of days fished or the minimum number of halibut needed for qualification were harvested.

Figure 4.9 is included to provide the reader an idea of the level of harvest that vessel owners had in 1999. The bottom line in the chart represents owners that had vessels fishing Area 2C and the top line is Area 3A. The four owners with the greatest catch history, in each area, are averaged to prevent the release of confidential information. The information in that figure shows the difference between owners that had higher catch levels and those that had lower levels of catch history. The information in this figure may provide some information on the number of permits that could be earned from relatively low levels of halibut participation.

In Area 2C, over 75 vessel owners reported less than 10 retained halibut in the logbooks, about 125 owners reported retaining less than 20 halibut that year. In Area3A, about 40 owners reported retaining less than 10 halibut in the 1999 logbook data, about 75 reported less than 20 halibut. The number of owners that retained less than 100 halibut in 3A was slightly under 175.

Figure 4.9 Retained halibut in 1999 per charter owner in Areas 2C and 3A



4.4 Overview of Impacts to Guided Anglers

At the February 2001 meeting, the Council requested that the analysis include a section that summarizes the implications of the alternatives for the angler (guided and unguided). In addition, the SSC suggested that the discussion on the impact of the proposed measures on the surpluses to consumers (i.e., anglers) and producers be expanded. The SSC also suggested that the expanded discussion address the potential impact of quota share opportunity costs on anglers and distinguish between the implications for resident versus non-resident anglers. This section addresses these related requests and provides a summary of the impacts of the three management alternatives under consideration.

In addition to the guidance provided by the SSC, a report by Dr. Wilen (U.C. Davis) was prepared at the request of Council staff for purposes of this analysis (see Appendix V). These sources, plus public testimony during the February 2001 meeting, suggest that there are a variety of views on the potential implications of the proposed management measures, not necessarily all in agreement. Thus, while it is certainly not possible to *quantify* the potential impacts of the proposed measures, it also may not be possible to provide a *qualitative* discussion that is consistent with every approach on this topic. Nevertheless, the following discussion provides a consolidated description of the major implications of the proposed measures, including an issue-by-issue summary of the implications of the proposed charter IFQ program for guided anglers.

Background

The Council is considering several alternative management measures for the guided sport sector that may impact the guided angler. These management measures are directed specifically toward the halibut charter industry primarily as a result of allocation disputes between the commercial and charter industries that depend on the halibut resource. Three alternatives are under consideration: (1) proceed with measures adopted in February 2000 that would impose a guideline harvest level (GHL) on the guided sport sector; (2) extend the existing commercial halibut individual fishing quota (IFQ) program to the guided sport sector; and (3) adopt a moratorium on participants in the guided sport sector. Each alternative has the potential to change the nature of the guided sport industry for all participants, including charter business owners and operators, guided anglers (both resident and non-resident) and the communities and regional economies that support this industry. In addition, since the charter and commercial sectors share the halibut resource, the potential measures have implications for the commercial fishing industry as well.

While each alternative may impact stakeholders in the unguided, guided and commercial halibut fisheries, these measures are under consideration to address the reallocation of the halibut resource caused by the unconstrained growth of the sportfishing sector. Prior to the Council's adoption of the GHL management measures and until such measures are implemented, the halibut charter industry will continue to enjoy unlimited rights to harvest the resource. That is, while individual anglers may be restricted in the amount they can harvest (e.g., bag limits, etc.), there are no limits on the amount that guided anglers may harvest collectively. As the guided sport industry has grown, so has the amount of halibut harvested. Growth in the halibut harvest levels by the charter industry has inadvertently reduced the amount available for commercial harvesting. A reduction in the commercial halibut harvest level, in turn, represents a cost to the commercial sector which is not borne by the participants of the charter industry. Instead, the cost is borne by the consumers and producers of commercially harvested halibut. In addition, unconstrained growth in the halibut charter industry has reduced local availability of the resource near some ports and has degraded product quality (i.e., the quality of the halibut charter trip experience) by requiring some charter operators to travel longer distances. It is these issues and other problems associated with unconstrained growth in the halibut charter industry that the alternative management measures are intended to address.

4.4.1 Impact on Consumer (Angler) and Producer Surplus

Recreational activity associated with charter operations generates benefits to the guided angler (often called consumer surplus) and profits to charter operators (often called producer surplus). Together, the surpluses to consumers and producers represent net economic benefits to the Nation from conducting the charter fishery. While each proposed measure has the potential to change the price and availability of charter trips for consumers (the anglers) and costs for charter operators, these changes are best discussed in the context of the potential impacts to the consumer and producer surplus (i.e., angler benefits and operator profits). For example, even if charter trip prices stay the same, angler benefits will decline if the availability of charter trips declines.

The following discussion addresses the potential changes in net economic benefits that may arise from the alternatives under consideration and the implications for the guided angler. For simplicity, the analysis assumes that competitive market conditions exist in the halibut charter fishery. This discussion is necessarily qualitative in nature with efforts made to indicate the direction of the impacts and how the effects may differ (1) for resident versus non-resident anglers, and (2) in the short- and long-run. No attempt is made to quantify the potential magnitude of the impacts because of the complexity and extensive data requirements associated with any reliable estimates. That is, any reliable estimate of the magnitude of the impacts would require the development of rigorous models for estimating the supply and demand for charter trips. For example, the types of information needed to characterize the supply function include (but are not necessarily limited to) the following:

1) Number and types of charter operators;
2) Cost functions for charter operators, including average and marginal costs;
3) Distribution of fixed versus variable costs among charter operators;
4) Degree of product differentiation and pricing flexibility by port;
5) Existence and distribution of economic profits among charter operators;
6) Marginal value of halibut resource to charter operators;
7) Availability and marginal costs of substitutes for halibut (e.g., salmon, whale watching);
8) Whether or not the charter industry is an increasing cost industry in the long run.

To characterize the demand for charter trips by the guided angler, an approach similar to that taken by Lee et al. (1999b) in the development of a participation rate model for recreational halibut fishing off the Kenai Peninsula would be needed. This model was developed by collecting data on angler preferences as a function of charter trip attributes, including cost of the trip, species (Pacific halibut, king salmon and silver salmon), and number and size of fish caught. The model separately characterized resident angler (Alaskan) demand versus non-resident angler (U.S. residents of the lower 48) demand. Using this model, the authors estimated the price elasticity of demand for charter trips for residents and non-residents and also projected changes in participation in response to reductions in expected catch. The study found that demand by resident anglers is more elastic than demand by non-resident anglers, although demand by both groups is inelastic. The study also found that angler participation is more sensitive to reductions (and less sensitive to increases) in expected catch rates. While the model may be used to quantify impacts to changes in the halibut charter fishery off the Kenai Peninsula, it cannot be extended with any confidence beyond this geographic area. Thus, at a minimum, a similar model would need to be developed on an area-wide basis for Areas 2C and 3A.

In addition to area-wide participation rate models, quantifying the impacts of the alternative management measures on the guided angler also requires projection of the growth rate of the halibut charter fishery. Such projections would require estimates of (1) the growth of tourism and the proportion of any additional tourists likely to take halibut charter trips, and (2) the growth of the Alaskan resident population and the proportion likely to take halibut charter trips. While recent trends may serve as a useful indicator of future growth, actual growth rates are likely to depend on a number of macro-economic factors, including the condition of the

economies of Alaska and of the U.S. overall. Estimates of these growth rates are needed to determine when the GHL measures are likely to take effect and, in the case of the IFQ program, the potential migration of quota shares between the charter and commercial sectors.

4.4.1.1 Alternative 1. GHL Management Measures (Status Quo)

At the February 2000 meeting, the Council adopted GHL's for the halibut charter fishery and a set of management tools that would be triggered in the event that the GHL's are exceeded (see Section 4.1 for a more detailed discussion of this alternative). The GHL limits the harvest by the charter sector to 13.05% of the combined commercial and charter quota in Area 2C and 14.11% of the combined Area 3A quota. Management measures (defined for each area) would be implemented if the charter harvest exceeds the GHL and would be removed if the harvest falls below the GHL. Importantly, the management measures would not be implemented in the year the overage occurred but, instead, would be implemented in the season following the overage. For example, in years that the charter harvest exceeds the GHL by > 20%, measures projected to achieve a 0-20% reduction would be implemented the following season (i.e., the next year) and additional measures projected to achieve >20% reduction would be implemented one year after that (i.e., two years after the overage occurred). The types of management measures that could be implemented include (in increasing order of expected effectiveness): trip limits, skipper and crew harvest limits, annual harvest limits (on clients), and a one fish bag limit in August. The implications of this alternative for the guided angler will be considered for two scenarios: Scenario 1 - GHL is not binding, and Scenario 2 - GHL is binding.

Scenario 1. GHL is Not Binding:

Based on 1999 halibut harvest levels for the charter sector in Areas 2C and 3A, the GHL is not yet binding. Specifically, the halibut charter harvest in Area 2C would need to grow 36% beyond the 1999 harvest levels before any additional management measures would be implemented. Similarly, in Area 3A, the charter harvest would need to grow 37% before the GHL management measures would be triggered. Thus, there is some room for growth of the halibut charter sector in both areas, assuming no appreciable decline in the abundance of the halibut resource. On the other hand, the GHL limits could be reached sooner if a sharp decline in the abundance of halibut occurs.

To the extent that growth in demand occurs, the halibut charter industry may experience changes in its costs that may impact charter trip prices and the quality of the halibut charter trip experience for the guided angler. Such changes would occur as the charter industry responds to increasing demand for its product. For example, if demand for charter trips increases, prices may rise in the short run as charter operators respond by offering more trips. If charter operators believe the increased demand is sustainable, they may decide to increase capacity by adding another boat or new entrants may be attracted into the industry (to the extent that economic profits are being made). Thus, over the long run (an adjustment that may take a few years), the supply of charter trips increases, putting downward pressure on prices. Even so, prices may rise over this period (in response to rising demand) if costs in the industry increase for all operators. For example, if growth in the industry results in more crowding or increases localized depletion of the halibut resource, charter operators may need to travel longer distances to reach suitable fishing grounds. If the average distance traveled increases for the industry, costs (e.g., fuel costs, crew wages) will rise as well. Thus, if industry costs rise in response to growth in demand, prices for charter trips will trend upward. These same results would occur with or without the GHL in place.

These effects are illustrated in Figure 4.10. When the GHL is not binding, the market for charter trips reflects conditions under an open-access fishery. Initially, the supply and demand for charter trips are represented by curves S_0 and D_0 and the market price and quantity of trips are P_0 and Q_0, respectively. The long-run

supply curve reflects the marginal costs for the industry as represented by the horizontal curve S_{LR}. Initially, the consumer surplus is area P_0-a-b but the producer surplus is zero since the market is in long-run equilibrium. When demand increases, the demand curve shifts to the right to curve D_1. In the short-run, this may drive up prices to P_1 and increase profits. At this higher price, additional charter operators enter the market (assuming no significant barriers to entry) and supply increases to S_1. This expansion occurs until prices return to reflect long-run marginal costs. While prices fall back to P_0, now the quantity of trips consumed/produced is Q_2. This process increases the surplus to consumers to area P_0-aa-bb.

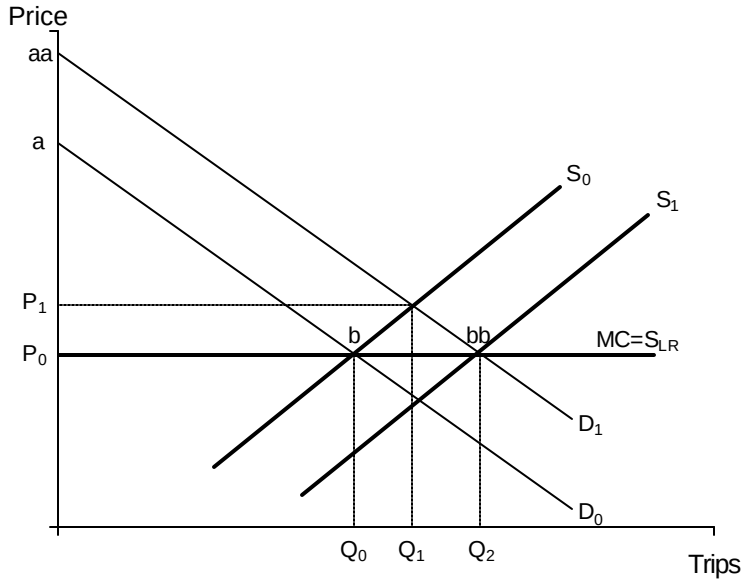


Figure 4.10 - Effects of Growth in Demand (GHL Not Binding)

Scenario 2. GHL is Binding:

If growth in the halibut charter sector increases to the point that GHL measures are triggered, participants (guided anglers and charter operators) would be impacted. Because, however, GHL management measures are implemented in the season *after* the overage occurred, the industry adjustment would occur in a step-wise fashion over a multi-year period. Consider first what would happen in the year the overage occurred. That season, although the charter industry may suspect the potential overage, no individual charter operator would have any information to suggest or encourage the initiation of conservation efforts. That is, in that season, the industry would function as normal. The market price for charter trips would reflect the normal clearing process and correspond to the intersection of the supply and demand curves. In addition, the commercial sector would harvest its full TAC that year and would not be impacted the year the overage occurred.

If it is determined, however, that the GHL was exceeded, management measures would be implemented in the next season. The nature of the management measures will depend on the magnitude of the overage. In addition, the commercial TAC would be adjusted downward to account for the increased charter sector harvest. The response of the charter industry to the GHL measures and the impact on the guided angler depends largely on the type of measures implemented. The potential short-run impacts of the various GHL management measures are as follows (see also NPFMC 2000a):

< Trip Limits - this measure would allow charter operators to make only one trip per day for each vessel. This is estimated to impact a relatively small percentage of charter operators that make more than one daily trip per vessel.

- < No Harvest by Skipper & Crew - this measure would reduce the average harvest per trip but not necessarily reduce the number of trips offered. Costs may rise, however, if charter business owners must compensate the skipper/crew by another means (e.g., increase wages).
- < Annual Limits on Angler Harvests - this measure would limit the number of fish an angler would be allowed to harvest for the season. Although relatively few avid anglers would likely be impacted by this measure, it would effectively reduce the demand for charter trips (i.e., the demand curve would shift inward).
- < One-Fish Bag Limit in August - this is likely the most restrictive measure but also most likely to be effective in reducing charter sector harvests. The one-fish bag limit would have several results: (1) reduce the harvest per trip in August, (2) reduce demand for charter trips in August, and (3) potentially increase demand for charter trips in the earlier months (e.g., May-July). By itself, a reduction in the harvest per trip could help reduce charter sector harvests for the season without necessarily reducing the quantity of charter trips taken. It is also possible, however, that the one-fish bag limit would degrade the quality of the experience, reducing demand. While a portion of the normal demand in August may be shifted to the earlier months, it is likely that the net effect would be a decrease in demand for the season.

The effects of the GHL management measures when the GHL is binding are illustrated in Figure 4.11. In the season the overage occurs, the market clears where the demand curve (D_0) intersects the long-run supply curve (S_{LR0}) and the price and quantity of charter trips are P_0 and Q_0, respectively. The consumer surplus is again the triangle P_0-a-b. As shown, the quantity of trips consumed exceeded the quantity corresponding to the GHL. If trip limits and crew harvest limits are imposed in the next season, the short-run supply curve would shift inward to S_1. In addition, measures are implemented including angler harvest limits and the one-fish-bag limit in August. These measures reduce demand and the demand curve shifts to the left to D_1. Since charter operators compete for fewer clients, their costs rise to S_{LR1}. The net result of these effects is to reduce the quantity of trips consumed to the GHL or Q_1 and prices rise to P_1. The consumer surplus is reduced to area P_1-aa-bb and the producer surplus is reduced to zero as a result of increased industry costs.

Overall, the GHL and associated management measures are likely to introduce more variability in the charter industry in years following an overage. While guided anglers would be least impacted by trip limits and crew harvest limits, these measures are also likely to be the least effective. Annual harvest limits on anglers and the one-fish bag limit both work to reduce demand for charter trips. While trip limits may result in higher charter trip prices by constraining the supply of charter trips, management measures that work to reduce demand (annual harvest limit, bag limit, etc.) may alleviate upward pressure on prices. Together, the GHL management measures may serve to keep the charter sector harvest below the GHL. It is also possible, however, that the charter industry may work together to find ways to police themselves as halibut harvest levels approach the GHL in order to avoid triggering the GHL measures and any "negative" publicity that such measures may bring about (see also Wilen's discussion of this issue in Appendix V).

Finally, to the extent that the GHL management measures fail to keep the charter sector harvest below the GHL, the commercial fishing sector's TAC will be decreased to account for overages in the charter sector. The costs associated with such reductions in the commercial sector's TAC would be borne by the commercial sector in terms of forgone revenues and represents a reduction in the total surplus to producers and consumers in the commercial sector.

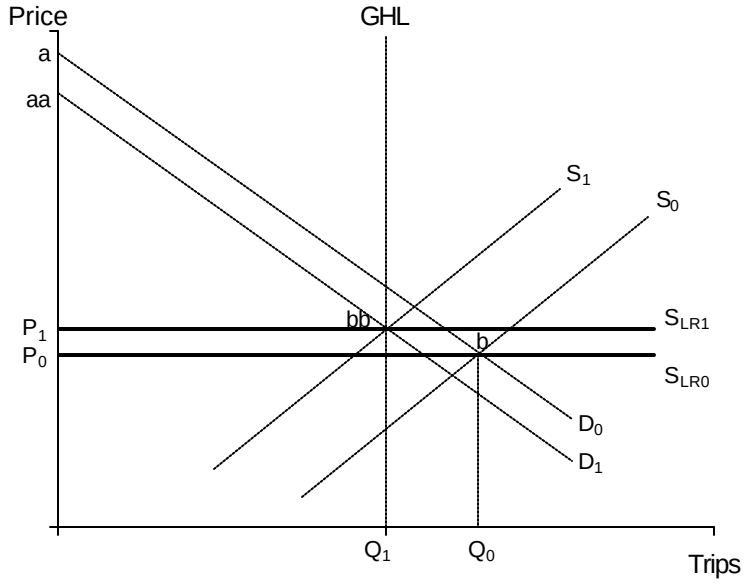


Figure 4.11 - Effects of GHL When GHL is Binding

Initially, quantity consumed is Q_0 at price P_0 and the GHL is exceeded. Measures implemented next season reduce short-run supply to S_1, reduce demand to D_1 and increase costs to S_{LR1}. At the new equilibrium, prices are higher (P_1) and quantity of trips is lower (Q_1). The consumer surplus is also reduced to area P_1-aa-bb.

4.4.1.2 Alternative 2. Halibut Charter IFQ Program

Under this alternative, halibut quota shares (QS) would be allocated to charter business owners who meet certain qualification criteria (see Section 4.2 for a more detailed discussion). The amount of quota shares issued would be based on a combination of the issuee's halibut harvest history (based on ADF&G logbook records for 1998 and/or 1999) and evidence of longevity. The QS represent a percentage of the charter sector's annual TAC and are converted to a poundage allocation (i.e., individual fishing quotas or IFQs) each year. Following the initial allocation of QS, any new entrant or charter operator needing additional quota would need to purchase QS or lease IFQs. While the QS distributed to charter operators are substantially similar to commercial halibut QS, several types of restrictions on transfers are under consideration that may limit transfers (sales and/or leasing) of QS or IFQs between the commercial and charter sectors.

This section first addresses the overall implications of the IFQ program for the charter sector (charter operators and guided anglers). This general discussion is followed by a summary of the impacts on an issue-by-issue basis (for the eleven issues under consideration for this alternative). The discussion that follows represents one plausible scenario for how events may enfold under an IFQ program but it is not necessarily the only conceivable scenario. The staff has been presented with several divergent views on the potential impacts of an IFQ program. Under one set of assumptions, charter trip prices under an IFQ program would rise in a manner similar to what would occur under the GHL (assuming a binding GHL or TAC) but efficiency gains under an IFQ program would expand profits (i.e., the producer surplus) for charter operators. An alternative view developed by Wilen (see Appendix V) suggests that charter trip prices are constrained by macro-economic factors and the availability of substitutes for both resident and non-resident anglers. As a result, prices may not rise significantly. Instead, Wilen suggests that the main effect of an IFQ program is

to allow and encourage more efficient charter operations with the resulting cost-savings reflected in the market price of charter quota shares. It is even conceivable, according to Wilen, that cost savings realized over the long-term could result in lower charter trip prices, increased availability and improved product quality.

The implications of the charter IFQ program for stakeholders in the sport and commercial fisheries are first discussed assuming no transfers between sectors are allowed (although transfers within the charter sector are permitted). This assumption effectively makes the charter sector a closed system whereby quota share values are determined strictly be their marginal value in the charter sector. Two scenarios are considered: Scenario 1 - TAC is not binding and Scenario 2 - TAC is binding. Following this discussion, the effects of allowing transfers between sectors are considered.

4.4.1.2.1 Effects of IFQ Program - No Transfers Between Sectors

Upon implementation of the charter IFQ program, costs in the charter industry will rise for at least three reasons. First, there is an opportunity cost associated with holding quota shares that have value to other stakeholders. When transfers between sectors are not allowed, the opportunity cost is determined by the marginal value of quota shares *within* the charter sector. Secondly, charter operators are not likely to receive the exact amount of QS needed to support their normal business activity; some may receive too many and others may receive too few (or none). A third cost may be the fees charged by NMFS to cover the cost of managing an IFQ program (e.g., the commercial fee program). Transfers within the charter sector increase costs because of transaction fees and the costs to purchase or lease the quota shares (although those with excess quota shares would receive income from such transfers). The costs of the quota shares, including opportunity costs, increase the fixed costs of the charter operators since quota shares are long-term assets much like a boat. That is, decisions to purchase (or sell) QS are likely to be based on a longer-term assessment of the business' needs while leasing is likely to be used to adjust for in-season requirements. Thus, variable costs and marginal costs will rise to reflect the cost of leasing IFQs.

The implications of these cost increases for the guided angler depend on (1) whether the TAC is initially binding, (2) the response of the charter industry, and (3) the elasticity of demand for charter trips. In addition, short-run effects will likely differ from long-run effects and the implications will likely differ for resident versus non-resident anglers.

Scenario 1. TAC is Not Binding:

If the TAC is not binding, the charter sector's TAC will be above its estimated harvest when the IFQ program is first implemented. As a result, the charter sector as a whole would have more QS than it expects to utilize. If transfers (including leasing) between sectors are not allowed, the opportunity cost of holding charter sector quota shares will reflect the intra-sector transfer price. Thus, initially, marginal costs for individual charter operators rise by the intra-sector IFQ lease price.

In the short run (first season after issuance), charter trip prices may be relatively sticky, especially if the industry is highly competitive. In response, some charter operators will reduce their supply of charter trips while others may cease operations rather than incur operating losses. Still others may be sufficiently profitable (in spite of the cost increases) and continue to operate normally. To the extent that the supply of charter trips decreases in the short run (i.e., the supply curve shifts inward), the price of charter trips will rise. The magnitude of the price increase will depend on the price elasticity of demand. The study by Lee et al. (1999b) indicates that the (short-run) price elasticity of demand for charter trips is inelastic, although demand is more elastic for resident anglers than for non-resident anglers. This implies that for a given decrease in the supply of charter trips, prices would be expected to rise more for non-resident anglers than for resident anglers.

After this first season, adjustments in the industry are likely. Some marginal charter operators may choose to exit the industry and sell their quota shares. Others may decide to reduce capacity (e.g., sell a boat) rather than buy additional quota shares. Still others may decide to buy out the operators that exit the industry, resulting in consolidation of the industry among the lower-cost charter operators. Such consolidation would tend to lower average costs for the industry. Meanwhile, anglers are also likely to make adjustments, especially non-resident anglers. Since the decision to take a vacation in Alaska may be partially based on the price of charter trips, a rise in charter trip prices may make other substitute vacation opportunities relatively more attractive. As a result, demand for charter trips by non-residents may decline (or growth may slow). In this sense, demand for charter trips is more elastic in the long run. The net effect of these adjustments is difficult to predict, even qualitatively, because the effects may off-set each other.

The effects of an IFQ program when the TAC is not binding (and when no transfers between sectors are allowed) are illustrated in Figure 4.12. Initially, the market is in equilibrium with prices at P_0 and quantity Q_0 (below the charter sector's TAC). The demand curve is represented by D_0, the (short-run) supply curve is S_0 and the long-run marginal cost curve is MC_0. The consumer surplus is represented by area P_0-a-b. When the IFQ program is implemented, each firm's marginal costs rise by the intra-sector IFQ lease price (not shown). As a result, in the short run, supply contracts and the short-run supply curve shifts to S_1 and charter trip prices rise to P_1. The consumer surplus declines and is now represented by area P_1-a-bb. The area P_0-P_1-bb-c, reflects the value of holding quota shares in the charter sector (see also Wilen's discussion in Appendix V). In the long run (e.g., the next season), consolidation in the industry lowers marginal costs (excluding quota share values) and the long-run marginal cost curve shifts downward to MC_1. With prices now at P_1, profits (producer surplus) expand and supply shifts outward (due to new entrants or each firm adding capacity). Assuming demand remains unchanged, prices fall to P_2 and quantity rises to Q_2, reflecting the new long-run market equilibrium. At this new equilibrium, the consumer surplus is area P_2-a-cc and the area P_2-cc-d-e reflects the value of quota shares in the charter sector.

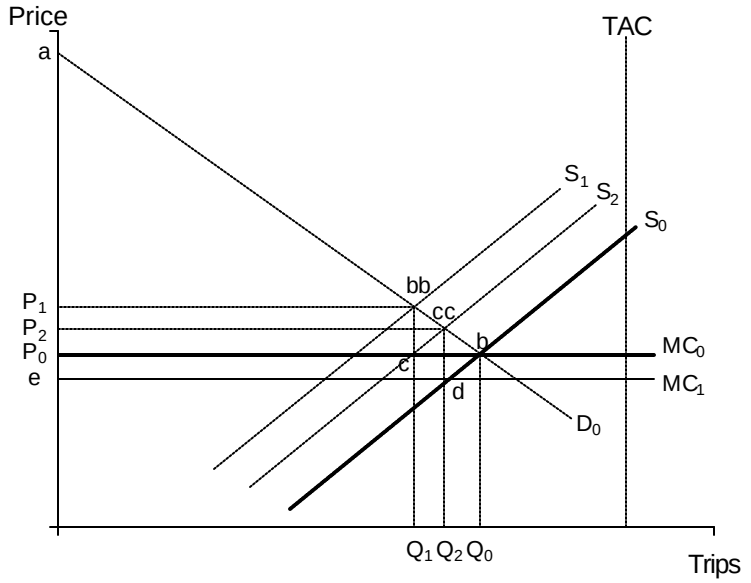


Figure 4.12 - Effects of IFQ Program when TAC is Not Binding

Initially, the market is in equilibrium at price P_0 and quantity Q_0. When the IFQ program is implemented, each firm faces higher costs and supply shifts to S_1 in the short run. This causes prices to rise to P_1 and quantity to fall to Q_1. In the long run, consolidation among low-cost firms causes marginal costs to fall to MC_1 (excluding quota share values). Expansion in supply to S_2 results in new equilibrium at price P_2 and quantity Q_2. The producer surplus (area P_2-cc-d-e) reflects the total value of quota shares in the charter sector.

Compared to the GHL when the GHL is not binding (i.e., the open access fishery), benefits to consumers may be lower if the new market equilibrium reflects higher prices and reduced quantity of charter trips. Charter operators, however, now capture resource rents reflected in the value of their QS holdings. Finally, if transfers between sectors are not allowed, a portion of the charter sector's TAC would remain unharvested. This is in sharp contrast to conditions under a GHL where any quota in excess of the expected charter sector harvest would be allocated to the commercial sector. The potential for a portion of the charter's allocation to remain unharvested represents a decrease in net economic benefits to society, compared to conditions under a GHL.

Scenario 2. TAC is Binding:

Under this scenario, the charter sector's TAC at the time of the initial allocation is less than the estimated charter harvest (based on harvest levels prior to program implementation). The charter sector as a whole has fewer QS than needed to maintain its previous activity. If no transfers between sector's are allowed, the sector's TAC constrains the quantity of QS employed in the charter sector and intra-sector transfer prices are higher (compared to when the TAC is not binding). With higher transfer prices, costs (both opportunity and transfer costs) in the charter sector rise more.

In the short-run, costs rise for each individual firm. Again, charter trip prices in the short run (i.e., the first season) are likely to be sticky. Since some operators do not have enough QS to maintain their previous activity and others may reduce supply to avoid operating losses, supply contracts. As a result of the reduction in

supply, prices rise and the quantity of trips supplied is reduced to the amount corresponding to the sector's TAC. In the long run, industry consolidation occurs among the lower-cost charter operators and marginal costs for the industry decline and profits rise. In addition, over the long-run, demand may decline since other substitute recreational activities may become relatively affordable compared to charter trips. Finally, it is also possible that charter operators will find ways to reduce the halibut harvest per trip and effectively increase the productivity of each quota share held.

These effects are illustrated in Figure 4.13. Initially (pre-IFQ), the market is in equilibrium at price P_0 and quantity Q_0. Again, the supply and demand curves are represented by S_0 and D_0 and long-run marginal costs are MC_0. The consumer surplus is represented by area P_0-a-b and the producer surplus is zero since no economic profits are being made. When the IFQ program is implemented, the TAC restricts the number of charter trips to Q_1. At this quantity, the price anglers are willing to pay for charter trips is P_1. If no transfers between sectors are allowed, the value of quota shares will be determined by the difference between P_1 and the long-run marginal costs, MC_0 (see also Wilen's discussion in Appendix V). Thus, the short-run supply curve contracts to S_1 and the total value of quota shares is represented by area P_0-P_1-bb-c. In the long-run, industry consolidation among the lower-cost charter operators reduces marginal costs to MC_1 (excluding quota share values). Since the TAC is binding and no transfers between sectors are allowed, the quantity supplied remains at Q_1. Profits, however, expand and the value of quota shares rise as reflected by the area P_1-bb-d-e. The value of the quota shares represents the additional resource rents captured by the charter operators under an IFQ program. Benefits to consumers (angler surplus) decline (relative to pre-IFQ benefits) and are represented by the triangle P_1-a-bb.

In effect, the price of quota shares rises until the quantity of charter trips supplied is reduced to the number needed to keep the sector's harvest at or below the sector's TAC. By comparison, if the sector is subject to a GHL and associated management measures, the mechanisms for keeping the charter sector's harvest below the GHL are less efficient. That is, instead of the market price of QS working to limit the activity of the charter sector, a series of management measures would be triggered under the GHL. Some of the measures work to limit the supply of charter trips (i.e., trip limits) while other measures work to limit demand (i.e., annual harvest limits and bag limits). There are costs associated with these measures that are borne by the charter sector, even if charter operators do not have to pay an explicit cost as they would under an IFQ program. For this reason, net economic benefits are likely to be higher under an IFQ program than under the GHL alternative. In addition, to the extent that the GHL measures fail, there is an additional cost borne by the commercial sector in the form of forgone revenues.

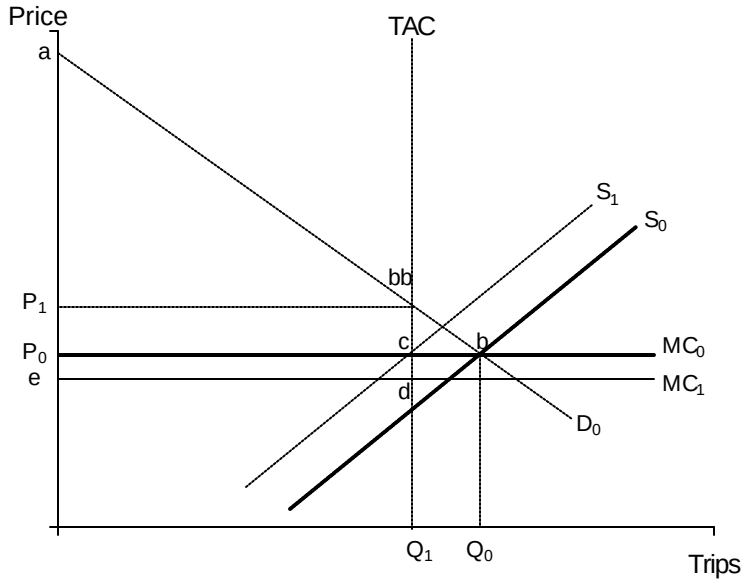


Figure 4.13 - Effects of IFQ Program When TAC is Binding (No Transfers Between Sectors Allowed)

Initially (pre-IFQ), the market is in equilibrium at price P_0 and quantity Q_0. When the IFQ program is implemented, the TAC is binding at quantity Q_1. At this quantity, anglers are willing to pay P_1. In the short run, firms reduce supply to S_1. In the long run, consolidation lowers industry costs (excluding quota share values) to MC_1. Since TAC is binding and no transfers are allowed, the equilibrium remains at price P_1 and quantity Q_1. The value of quota shares (area P_1-bb-d-e) reflects the resource rents captured by producers.

4.4.1.2.2 Impact of Transfers Between Sectors

The discussion thus far has not considered the effects of quota share transfers between the charter and commercial sector and has treated the charter sector as a closed system. If transfers between sectors are allowed, the implications become more complex and will depend on whether the charter sector has an excess supply or excess demand for quota shares, relative to the commercial sector. Transfer restrictions are likely to have a significant impact on the price of quota shares (both sale and lease prices), which in turn impacts the magnitude of the opportunity cost of holding QS. The higher the quota share price, the higher the opportunity cost of holding QS.

The effects of transfers are illustrated in Figure 4.14. Initially, the market is in equilibrium at price P_0 and quantity Q_0. Demand is given by the curve D_0 and long-run marginal costs are given by MC_0. When the IFQ program is implemented, the initial TAC constrains output to Q_1. At that price, consumers are willing to pay P_1. If no transfers between sectors are allowed, the total value of quota shares would be represented by the rectangle P_0-P_1-a-b. This corresponds to a per pound lease price for IFQs given by $(P_1\text{-}MC_0)*Q_1/TAC_1$ (see also Wilen's discussion in Appendix V). Now suppose that transfers between sectors are allowed. The direction of transfers will depend on the initial lease price for IFQs in the commercial sector. If commercial prices are higher, transfers will take place (from the charter to the commercial sector) until a new equilibrium

lease price is reached[32]. Such transfers effectively reduce the charter sector's TAC to TAC_2. As a result, quantity is constrained to Q_2 and charter trip prices rise to P_2. If instead, commercial lease prices are below the charter sector's intra-sector lease price, transfers will occur from the commercial to the charter sector. Now, the charter sector's TAC shifts out to TAC_3, quantity expands to Q_3 and charter trip prices fall to P_3. Thus, transfers between sectors effectively shifts the point where the TAC is binding.

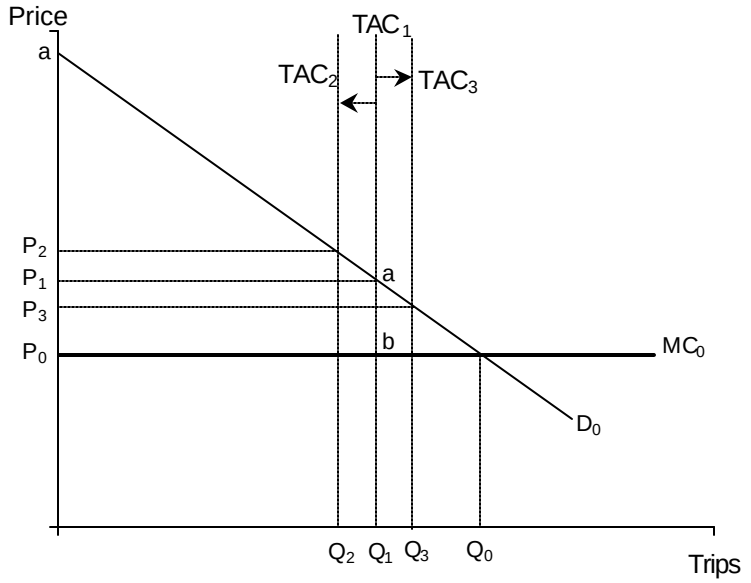


Figure 4.14 - Effects of Transfers When TAC is Binding

Initially, market is in equilibrium at price P_0 and quantity Q_0. When IFQ program is implemented, the TAC constrains output to Q_1. If the marginal value of quota shares is higher in the commercial sector, transfers occur fromthe charter to the commercial sector and the TAC is reduced to TAC_2. If the marginal value of quota shares is lower in the commercial sector, transfers occur from the commercial to the charter sector and the charter sector TAC expands to TAC_3.

With this in mind, the implications of allowing transfers between sectors may be explained for the following situations:

1. TAC Not Binding, No Transfers - The amount of QS exceeds the expected harvest in the charter sector. Charter QS prices are based on the marginal value of quota shares in the charter sector and will reflect intra-sector transfer prices. Due to the "extra" quota shares in the market, QS prices are likely to be relatively low.

[32]This argument assumes, for simplicity, that there is only one category of commercial halibut QS and that they are freely transferable. To the extent that separate categories exist, each with unique restrictions, there would be multiple prices for each category. The discussion here is intended to distinguish the two extreme cases of (1) no transfers, and (2) freely transferable. In reality, separate market prices will exist for charter QS and the various categories of commercial QS and the prices of different types of QS will only converge to the extent that few transfer restrictions exist.

2. TAC Not Binding, Transfers Allowed - The amount of QS initially exceeds the expected harvest. If commercial transfer prices are higher than the intra-sector transfer prices, transfers will occur until a new equilibrium price is reached. The new equilibrium QS price is likely higher than the intra-sector QS price. At this equilibrium, the marginal values of the transferable QS are equal in both sectors.

3. TAC Binding, No Transfers - The TAC constrains output and charter trip prices rise to reflect the amount anglers are willing to pay for the reduced quantity of trips. If no transfers between sectors are allowed, QS prices are based on their marginal value in the charter sector. The marginal value, in turn, is determined by the difference between the new (higher) price and long-run marginal cost of charter trips. Compared to when the TAC is not binding, QS prices are likely higher since there are no "extra" quota shares in the market.

4. TAC Binding, Transfers Allowed - Initially, the TAC constrains output and prices rise. The initial price of QS in the charter sector reflects their marginal value at the initial TAC. If the initial charter QS price is above QS prices in the commercial sector, transfers from the commercial to the charter sector will occur. This would increase the TAC and reduce QS prices in the charter sector. On the other hand, if the initial charter QS price is below QS prices in the commercial sector, transfers from the charter to the commercial sector will occur. This would further reduce the charter sector's TAC and increase charter QS prices.

4.4.1.2.3 Summary of Implications of Issues 1-11

The general discussion on the implications of extending the halibut IFQ program to the charter sector may be used as a framework for understanding the impacts of the eleven issues and various options of the proposed program. Each of these issues are discussed in more detail in Section 4.2. This section summarizes the main impacts from the perspective of the guided angler.

Issue 1 - Initial Allocation for the Charter Sector:

The options under this issue establish the charter sector's TAC at the time of the initial allocation. If the charter sector's TAC is above its expected harvest, there will be an excess supply of QS in the sector. This excess supply of QS (assuming no transfers between sectors) will put downward pressure on QS prices until a new market equilibrium is reached. This situation is more likely to arise under Option 1 (charter sector allocations of 14.11% in Area 3A and 13.05% in Area 2C) than under Options 2 or 3. If transfers between sectors are not allowed, a portion of the charter sector's TAC will remain unharvested. Restricting transfers is also likely to keep QS prices low in the charter sector. If, instead, transfers are allowed, QS prices are likely to be higher and excess charter quota can be harvested by the commercial sector.

Options 2 or 3 are more likely to result in a TAC that is binding for the charter sector at the time of the initial allocation. If so, QS prices are likely to be higher if no transfers are allowed (compared to when the TAC is not binding). The supply of charter trips is constrained by the TAC and charter trip prices rise. The magnitude of the price increase depends on (1) the extent that supply contracts (due to the constraining TAC), and (2) the elasticity of demand for charter trips by the guided angler.

Issue 2 - Who is Eligible to Receive an Initial Allocation of QS:

The options under this issue restrict the initial allocation of QS to U.S. citizens or U.S. companies and to either charter vessel owners or bare vessel lessees. There are no significant implications of the options under this

issue in terms of the costs, supply and prices of charter trips. An initial allocation of QS to guided anglers is not under consideration. By granting QS to charter business owners, however, the charter IFQ program provides a mechanism for keeping the charter sector harvest below the sector's TAC.

Issue 3 - Qualification Criteria :

Seven options for qualification criteria are under consideration. All depend on harvest history based on the 1998 and/or 1999 ADF&G logbook records. Five of the seven options also include a longevity requirement or evidence that a charter business has carried clients for a period of years. There is also a suboption to require initial issuees to meet a recency criterion and for claimed trips to have been under the operation of a USCG licensed skipper.

This issue (as well as Issue 4) impacts the distribution of QS among participants in the charter sector (which, in turn, has indirect effects on industry costs). In general, to the extent that the criteria include charter businesses that intend to stay in the industry but exclude potential speculators (that intend to exit the industry), costs will rise less. That is, if the criteria are too inclusive, QS may be awarded to a number of charter operators that subsequently exit the industry (via the sale of their QS). On the other hand, if the criteria award QS to too few charter operators, industry costs will rise more due to the greater need to transfer QS within the charter sector.

From this perspective, Option 2, which requires the issuee to have submitted only one logbook (in 1998 or 1999), is the most inclusive but may result in the granting of QS to a number of speculators that subsequently exit the industry. It is possible, however, that the suboption that requires issuees to meet a recency criterion would help to reduce this potential. The remaining options are less inclusive and may be ranked as follows (in the order of decreasing inclusiveness): Option 1, Option 3, Option 7, Option 6, Option 5, and Option 4 (the least inclusive). The less inclusive the option, the fewer the number of charter businesses that will qualify to receive QS, the more charter businesses will need to purchase or lease QS, the more charter operator costs will rise.

Issue 4 - Basis for Distribution of QS:

The two options under this issue place varying emphasis on the ADF&G logbook record and longevity for purposes of calculating the distribution of QS to initial issuees. Under Option 1, 70% of the distribution is based on the ADF&G logbook record while, under Option 2 (the Modified Kodiak proposal), 33% of the distribution is based on the logbook record. To the extent that the distribution more closely matches the actual needs of each operator, fewer transfers will be required following the initial allocation. The fewer the transfers (to correct distributional inefficiencies), the lower the costs. Since Option 1 (70% based on logbook record) is more likely to result in a distribution of QS that is reflective of harvest history, it is more likely to require fewer transfers after the initial allocation.

Issue 5 - Transferability of QS:

There are several options under consideration for this issue corresponding to different types of restrictions. The implications of these options is highly dependent on whether the charter sector's TAC is binding or not binding at the time of the initial allocation. If the TAC is not binding (i.e., the expected charter harvest is below the TAC), prohibiting transfers from the charter to the commercial sector will result in a portion of the TAC remaining unharvested. On the other hand, if no transfers are allowed, QS prices in the charter sector are likely to be lower. This, in turn, would help keep costs down. If, however, the TAC is binding, QS prices

are likely to rise more if transfers between sectors are restricted. Higher QS prices translates into higher costs for the charter sector.

Option 1 proposes to create two types of charter QS, leasable and non-leasable. This option is likely to segment the market, reducing liquidity for both types of QS and result in pricing differences. Leasable QS are likely to be priced higher than non-leasable QS.

Option 2 proposes various restrictions on transfers between the charter and commercial sector. If transfers are prohibited, a portion of the TAC may remain unharvested (if the TAC is not binding) or QS prices are likely to be higher (if the TAC is binding). If it is expected that the charter sector's harvest will remain below the TAC for a few years, it may make sense to restrict permanent transfers (of QS) for 2-5 years (suboption to Option 2.a) but allow leasing. This would help keep QS prices down in the charter sector but also allow the charter sector to lease its excess QS to the commercial sector for harvesting purposes. Alternatively, if the charter sector TAC is binding, it may make sense to allow one-way transfers from the commercial to the charter sector for the first few years.

Option 3 addresses various blocking restrictions for QS transferred from the charter to the commercial sector. If the charter sector TAC is binding, it may be preferable to allow splitting of commercial blocks to facilitate transfers from the commercial to the charter sector. This option may be more of a concern to the commercial sector that may view block restrictions as necessary to deter laundering of commercial QS via transfers between sectors.

Option 4 addresses vessel class restrictions for transfers between the charter and commercial sectors. These restrictions could have a significant impact on the price of QS in the charter sector. This is because, if transfers are allowed, QS prices will gravitate to the value where their marginal value in the charter sector is equivalent to their marginal value in the corresponding commercial sector. If the TAC in the charter sector is not binding, the commercial sector is more likely to want to buy or lease quota shares from the charter sector. In this case, it may make sense to have few category restrictions on transfers to the commercial sector so that the charter sector has a relatively large market for its QS. If the TAC is binding, the charter sector is likely to want to purchase or lease QS from the commercial sector. In this case, vessel class restrictions may make sense to prohibit excessive transfers from one vessel category (e.g., the D category).

Option 5 limits the size of the transfer to 20-72 fish. From the charter sector's perspective, a smaller transfer size will facilitate transfers (within and between sectors).

Issue 6 - Eligibility to Receive QS and IFQ by Transfer:

Option 1 specifies who is eligible to receive transfers in the charter sector while Option 2 specifies eligibility for the commercial sector. The intent of these options is to reduce the potential for an absentee landlord situation by requiring transfer recipients to be involved in the charter (or commercial) industry. These options help to minimize the accumulation of charter sector QS by individuals or corporations that are not directly involved in the industry.

Issue 7 - Caps:

Caps limit the amount of QS an owner can use in the charter fishery and thereby prevent excessive accumulation of QS by one person. By doing so, caps help to keep the market for charter sector QS more competitive. QS prices are likely to be lower when the market is more competitive. Lower QS prices, in turn,

would help keep charter operator costs down. It is possible, however, that caps may prevent efficiency gains resulting from returns to scale.

Issue 8 - Miscellaneous provisions:

The options under this issue address several unrelated provisions, including a maximum line limit in Area 3A (Option 1), 10% underage provision (Option 2), 10% overage provision (Option 3) and a one-year delay between initial issuance of QS and fishing IFQs (Option 4). Of these options, Option 4 may be especially helpful in preventing unnecessary transfers and inefficient pricing in the first year. Thus, Option 4, may help to keep industry costs down and allow for a more gradual transition to the new system.

Issue 9 - Pounds vs. Numbers of Fish:

The options under this issue specify whether IFQs will be issued in pounds or numbers of fish. If IFQs are issued in pounds based on an average weight, charter operators that target larger-than-average fish will receive relatively fewer QS than those that target smaller-than-average fish (since QS are awarded based on catch history recorded in numbers of fish). Thus, charter operators that target larger-than-average fish would need to purchase or lease additional QS or reduce the size of fish targeted. If IFQs are issued instead in numbers of fish, initial issuees are more likely to receive an amount of IFQs that is reflective of their harvest history (recorded in numbers of fish). This would minimize changes in the way the charter fishery is conducted. Issuing IFQs in numbers of fish, however, may result in the charter sector's harvest exceeding the sector's TAC (in pounds) in years when the average weight of fish is higher than the previous year's. This overage would be corrected in the following year since the conversion from pounds-to-fish would be based on a higher average and result in fewer IFQs.

Issue 10 - Reporting:

Several options are being considered for reporting charter sector harvest. In general, a system that provides a cost-effective method of enforcement would help keep industry costs down. From this perspective, the option to require a reporting station in every city and charter boat location (Option 3) is likely the most costly and impractical.

Issue 11 - Community Set-Aside:

Under this issue, the Council is considering an option to set aside a portion of the combined commercial and charter TAC for Gulf coastal communities. The quota would be taken from both the charter and commercial sectors (either proportionally or on an equal pound basis) or entirely from the charter sector. The quota is intended to be used to assist individuals in small, coastal communities to start or further develop charter operations based in these communities. While qualifying individuals may use the quota, they cannot sell or lease the quota.

To the extent that the set-aside reduces the allocation to the charter sector, it may result in higher costs for charter businesses based in larger ports. The set aside would have a more significant impact if the sector's TAC is binding than it would if the sector's TAC is not binding. If the sector's TAC is binding, any further reduction in poundage would require charter operators (based in larger ports) to purchase or lease additional QS. As a result, QS prices would be higher and costs would increase more relative to if no set-aside is adopted. On the other hand, the set-aside may result in an increase in charter trips from qualifying coastal communities although the increase may not off-set the decline in major ports.

If the TAC is not binding, the set-aside is likely to have a much more modest impact. For example, it is possible that even if the entire set-aside is funded from the charter sector, the sector's TAC may still be above its expected harvest. If so, the excess charter sector QS would be made available to the qualifying coastal communities rather than leased (or sold) to the commercial sector. The cost to the charter sector is in the form of forgone income that it would otherwise earn from the lease of the excess QS. In addition, QS prices in the charter sector are likely to be higher relative to what they would be if no set-aside is established. The cost to the commercial sector (even if the entire set-aside is funded from the charter sector) is in the form of forgone revenue from harvesting the excess charter QS.

4.4.1.3 Alternative 3. Moratorium

The Council is considering implementing a moratorium on new entry into the halibut charter fishery as an alternative to the IFQ program (see Section 4.3 for a more detailed discussion). The moratorium options for determining who qualifies for the program are the same seven options selected for the IFQ program (discussed under Alternative 2, Issue 3). It is assumed that if the Council approves a moratorium, it would not alter the GHL amendment package (pending Secretary of Commerce approval) and, thus, the GHL restrictions would be in place. Under the proposed moratorium, qualifying charter businesses would be eligible to receive a moratorium license which limits the number of vessels they could operate in the charter fishery. The number of licenses (which are transferable) issued in the initial allocation relative to the number actively used in the fishery would determine their value. If the number of licenses issued is in excess than the number required, the value of the license will be lower than if the initial allocation is tightly constrained.

The moratorium differs from the IFQ program in that the moratorium license limits the number of vessels that could operate in the halibut charter fishery at any one time but does not limit the harvest (or number of trips) by each vessel. While the moratorium may impact charter business' decision on how many vessels to own and operate, it would not impact the number of trips each vessel could make (assuming the GHL is not binding).

Based on the analysis provided in Section 4.3, it appears that the number of vessels likely to qualify under a moratorium would be greater than the number required to harvest the GHL. If so, it is likely that moratorium licenses values will remain relatively low and the cost of entry into the industry will not rise substantially. In addition, the GHL is likely to become binding before the moratorium would become binding. As a result, the implications of this alternative largely default to the implications of the GHL (Alternative 1). That is, until the GHL is binding, the charter fishery will continue to operate on an open-access basis. Once the GHL becomes binding, management measures are triggered that work to constrain supply and demand for charter trips. To the extent the GHL sufficiently slows the harvest by guided anglers, the charter fishery is not likely to reach the point where the moratorium becomes limiting.

4.4.2 Changes in Angler Utility/Welfare

Changes in angler utility and welfare are the result of changes in the prices and/or attributes of a halibut charter trip. Dr. Wilen speaks to these issues in more formal economic terms in the Appendix V. In this section changes in the types of trips that may be offered to, or demanded by, charter clients will be discussed. Earlier in Chapter 4, trips with differing characteristics were discussed. Charter operators could either design trips tailored to specific client tastes in terms of the halibut to be retained or not retained, and market and price these trips accordingly. Or they could change the price structure of the trip to account for the amount of halibut a client wishes to retain.

The types of trips that charter operators may offer could include everything from catch and release only trips to trips that try to maximize the pounds of halibut retained. A whole range of trips between the polar opposites that could be offered, including the clients only keeping fish that are under or over a predetermined weight. Whatever the type of trips that are offered, if they are marketed to the clients that value that type of trip, the utility of these clients would be higher than clients valuing another type of experience. Therefore under an IFQ program, charter operators may try to market specific trips to a more narrowly focused clientele or design different types of charter packages at various price levels.

The price of the trip could be set to reflect the value of the halibut retained under an IFQ program. There are fisheries in Hawaii and blue fin tuna fisheries on the East coast where any fish harvested belong to the boat. In those Hawaii fisheries if a client wants to take home the fish s/he catches they must pay the boat, perhaps up to retail prices, for those fish. Therefore the client pays for the fishing experience and the fish separately. In the blue fin tuna fishery, the fish are so valuable that it is unlikely that many clients would buy the fish from the boat (prices over $30,000 per fish have been reported). They may also only be allowed to hook the fish, since the captain places great importance on not losing a fish once hooked and the clients may not have the experience needed to properly fight and land a large fish. Under current regulations commercial and sport halibut cannot be on the same vessel. Therefore, all of the halibut onboard would either need to be classified in the commercial or sport category. This regulation would require the boat to sell all of its fish commercially. That may mean they could sell some fish to clients (if the charter captain was registered to buy halibut) and some fish to the commercial market.

Overall, if the charter operators are able to rationalize their operations they will be able to decrease operating costs. These cost savings will result in increases in consumer surplus and consumer welfare. However they gains will be offset (by a unknown amount) by consumer surplus decreases associated with the opportunity cost of the halibut (Appendix V). It is important to note that under a binding GHL the charter sector also realizes an opportunity cost for halibut, but the system does not provide the appropriate mechanism to rationalize their fishery in order to reduce costs. Therefore, consumer surplus should be greater under an IFQ program relative to a GHL in a competitive market.

4.4.3 Impacts on Unguided Anglers

The impacts of a halibut charter IFQ program on the unguided halibut anglers are expected to be minimal. Implementing an IFQ program for the guided fishery will not limit the total amount of halibut unguided anglers are allowed to harvest. They will still be required to keep only two halibut per day, and that regulation will be in place regardless of whether or not the Council implements an IFQ program.

One of the issues that has been raised is the whether fishermen that would normally use the services of a guide would opt to rent a vessel and fish for halibut without a guide. They would then be fishing under the unguided regulations and not the IFQ program for guided anglers. The concern expressed was that this practice could lead to safety concerns, as inexperienced boat operators attempt to navigate the halibut fishing grounds. If safety concerns do arise as a result of this practice then stricter regulations may need to be considered for that industry. They may need to be considered even without an IFQ program since a binding GHL would likely result in higher prices for charter trips (see the discussion earlier in this section and the Appendix V prepared by Dr. Wilen). The same safety concerns would exist if a person decides to rent a vessel instead of taking a charter trip because of higher prices or changes in the attributes of the trip.

If the IFQ program leads to a more rationalized charter fishery, as would be expected, there may be fewer charter vessels per day on the halibut grounds. This could result from charter operators being better able to plan their trips and therefore increase the average number of clients per trip. Assuming a constant number

of clients over the season and more clients per trip, the overall number of trips would decline. A decline in the number of trip or perhaps even charter vessels as some consolidation occurs, may also result in less competition for port services (on any given day). These outcomes would benefit the unguided angler who is using the same fishing areas or port services as the guided angler.

4.4.4 Quota Share Issuance to Charter Operators versus Guided Anglers

In the commercial halibut IFQ program, quota shares grant holders the right to harvest a certain percentage of the sector's allocation. In this sense, they represent use privileges as opposed to ownership in the underlying resource. Along with this privilege, however, quota shares also grant certain responsibilities to the quota-share holder. That is, quota-share holders have the responsibility to (1) stay within their individual harvest allocation, and (2) take care of the halibut resource. In effect, by granting quota shares to individual harvesters, some of the burden of policing the allocation limits for the sector (i.e., the sector's TAC) is shifted to the individual harvester. The individual harvester, in turn, is given both an incentive and reward for this service. Since quota shares represent a long-term asset with value, they give holders an incentive to take actions that enhance quota share values over time.

Under the proposed extension of the halibut IFQ program to the guided sport sector, quota shares would be initially allocated to the providers of charter services (i.e., charter business owners that own, operate or lease charter vessels). Allocation of quota shares to the guided angler is not under consideration. This appears to be a departure from the commercial IFQ program because quota shares would not be allocated to the harvester of the halibut. Yet, there may be an economic parallel and rationale for why it may make sense to allocate quota shares to the charter operator. Like the commercial IFQ program, under the charter IFQ program, the charter operator is responsible for staying within its individual allocation and helps to enforce the allocation for the entire sector. In addition, quota shares provide both an incentive and a reward to the charter operator for providing stewardship services. With respect to this issue, Wilen notes the following (Appendix V):

> "An advantage to leaving quota in the hands of charter operators is that they are more likely to effective as spokespersons for resource stewardship. Again, in principle it might be possible for a representative of angler quota holders to speak on their behalf, but since there would need to be new lottery every year, the continuity that comes from permanent ownership is broken. One consistent lesson that arises out of experience in other ITQ programs in commercial fisheries is that property rights generate significant changes in attitudes toward long term stewardship. To the extent that program design can encourage these, they make the management task ultimately easier."

4.5 Administration, Monitoring, and Enforcement

<u>Administration</u>

The GHL analysis determined that the status quo alternative (GHL program) would likely require a huge additional burden on enforcement personnel and their associated costs. If the volume of catch indicates that the GHL has been reached or exceeded, one or more management measures would be employed in subsequent years to ensure that guided sport harvests of halibut remain below the GHL. Annual management measures implemented to restrict removals by charter vessels would require enforcement operations to assure compliance with such measures.

Currently, halibut removals by the charter fleet are monitored by the State of Alaska only, with the annual SWHS and, since 1998, a charter vessel logbook requirement. NMFS would need to gain formal access to the State's sport harvest and length data to calculate removals against the GHL and to acquire additional enforcement personnel for assuring compliance with management measures. For NMFS to make use of data collected by the State, Federal and State regulations require that NMFS and ADF&G first determine that such use would satisfy Federal and State regulations on confidentiality of data and other applicable Federal and State laws. NOAA, ADF&G, and CFEC recently signed a Reciprocal Data Access Agreement for sharing commercial fisheries data collected by NMFS, ADF&G, and CFEC; the lengthy process by which the agencies reached this agreement would presumably facilitate and expedite a similar agreement for sportfishing information for managing the charterboat halibut fishery, but negotiations for such an agreement might nevertheless take up to five or six months.

For purposes of the Paperwork Reduction Act (PRA), NMFS would need authorization from the Office of Management and Budget to collect the necessary information from charter vessel operators. While it is difficult to assess actual costs, the budgetary requirements for NMFS to develop its own data collection system for recording charterboat halibut harvests could be substantial, requiring personnel to receive catch reports and to calculate overall harvest. At a minimum, two full-time employees at GS 7 level, at $12.00 an hour, would be needed to receive reports and enter them into a data collection system for eleven months of the year, the duration of the halibut sportfishing season. If electronic reporting methods were devised, a data management system would need to be developed and maintained. For example, creating the software for the electronic component of information collection for the recent IFQ cost recovery program is expected to cost approximately $25,000.

The 1997 Council analysis reviewed two management tools that are associated with an allocation in commercial fisheries. Any program that implements a specific quota on a sector of the industry must include some method of effecting a fishery closure when that quota is reached. Two basic methods were identified: (1) in-season monitoring of harvest and the announcement of a closure upon attainment of the quota, or (2) setting the season length at the start of the fishing year based on projections of effort and catch. The Council has rejected these tools in favor of a third method: adjustments in bag limits or line limits designed to keep the overall harvest below the GHL, but without effecting an actual closure.

Under Alternative 2, RAM estimates a one-time expense of approximately $100,000 for adjustments to the current computer programming to incorporate the charter sector for monitoring of QS transfers and IFQ accounts. At least one full-time employee is anticipated to be needed. The remaining personnel are expected to absorb the workload for administration of the program.

Enforcement

Enforcement is a key component of any fishery harvest management scheme. Enforcement of the regulations that govern fishing under the IFQ program is accomplished by the U.S. Coast Guard and the NMFS Alaska Enforcement Division (AED). As a general rule, the Coast Guard is primarily responsible for at-sea enforcement, although it also conducts on-shore enforcement consisting of dock-side monitoring and after-hours surveillance of high threat areas. The AED is primarily responsible for on-shore (dock-side) monitoring. In addition to its enforcement responsibilities, the Coast Guard also monitors safety-at-sea.

The NMFS, USCG, Alaska Department of Public Safety., and ADF&G all report that they do not have enforcement programs specifically directed at the recreational charter fishery. Instead, enforcement occurs on an opportunistic basis. All agencies agree that some level of additional enforcement would be needed under a GHL system, depending upon the allocation and implementation scheme adopted. Also, the decision to

allocate additional enforcement to this program would properly entail an evaluation of the public interest in doing so, versus doing less enforcement somewhere else.

There are characteristics of the recreational charter fishery that suggest a different and lesser level of enforcement may be needed to ensure an adequate level of compliance with the program. Several characteristics of the fishery differentiate it from other fisheries and work to the advantage of regulators:

While the GHL program might have been able to rely to some degree on peer pressure (from clients as well as competitors), filing of logbooks or swiping IFQ cards may be less in the public eye. Charterboat operators are required to have a current Coast Guard license to operate. One of the conditions of the license requires the operator to comply with *all* Federal regulations. Charterboat operators potentially risk losing their Coast Guard license if they violate Federal fisheries regulations. It is reasonable to conclude that because of the nature of the Coast Guard license, inferring a trust and responsibility to the licensee, as well as the double jeopardy implications, charterboat operators would likely have a higher rate of compliance with GHL or IFQ regulations than might otherwise be expected.

USCG license requirements, along with the current system of opportunistic enforcement, may provide a level of compliance sufficient to ensure compliance with either the halibut charter GHL or IFQ program. As stated in the GHL analysis, the Coast Guard has taken the position that where the above does not hold true, if there is sufficient public interest and concern in the conduct of the recreational charter fishery, the Coast Guard could respond by shifting effort from other areas to focus on the charter fleet. A highly publicized focus operation, of short duration, may have sufficient impact to raise compliance back up to an acceptable level, while only requiring a modest shift of enforcement effort. These operations could be done periodically through the region and season, under an overall strategy of raising compliance to an acceptable level. This approach is different from one that attempts to identify the law enforcement resources necessary to check all fishery participants or apprehend all violators.

Implementation

In its development of an implementation plan for the commercial IFQ program, the Council reviewed implementation committee reports from state and federal agencies as well as from the ad hoc implementation work group (the first incarnation of the IFQ Implementation Team) prior to final action for the commercial halibut and sablefish program in December 1991. An implementation plan was included in the Secretarial review draft on the EA/RIR for the commercial halibut and sablefish IFQ programs. It addressed: (a) initial allocation; (b) annual management processes; (c) enforcement and monitoring; and (d) personnel and budget requirements.

The initial allocation portion addressed basic eligibility, compilation of the historical catch and vessel ownership database, the application process, appeals and an estimated time schedule to accomplish the initial allocation. The annual management portion discussed factors relevant to continuing the program after the initial allocation, such as the annual determination of individual fishing quotas, accounting of bycatch, control of and accounting of overages, quota share and individual fishing quota transfer procedures, ownership limitations and the western Alaska community development quota program. The monitoring and enforcement portion discussed procedures and requirements necessary to ensure the integrity of the program and prevent overfishing of the resource. Projected personnel and budgetary requirements were discussed in the final portion.

A similar implementation plan may be developed for the proposed inclusion of the charter sector into the existing halibut IFQ program that would address similar issues. If the Council adopts the community set-aside,

the trailing regulatory amendment for the administration of that program also could be wrapped into this Secretarial review package or submitted on its own timeline.

A tentative timeline for implementation is provided following the example in the EA/RIR of the commercial halibut and sablefish IFQ program. Given the scope of the plan, and the difficulties identified above, it will not be possible to have an operational quota system for the halibut charter sector until the 2003 fishing season at the earliest. Any slippage in the timing of any of the items below, may delay implementation even further. The following provides an estimate of the timetable for implementation:

Action	**Start date**	**End date**
Council Approves Charter quota share plan.	April 2001	
Secretary Approves Charter quota share plan and Final Rule published and effective.	December 2001	
Official Charter IFQ Record" (implementation database) created.	April 2001	December 2001
Application Period.	January 2002	July 2002
Application Processing and Claims Verification (including notice and opportunity to submit evidence)	August 2002	January 2003 (continues indefinitely for some, depending on appeals)
Initial Issuance of Charter Quota Share to eligible applicants.	October 2002	January 2003
Quota Share Pools established; calculation and issuance of 2003 IFQ Permits (Note that some applications may still be in appeal; in that case, amount of QS at issue may be included in the QS Pool in anticipation of resolution during the season)	February 2003	
Charter fishing under IFQ program begins.	Spring 2003	

State Comments on Quota Share Migration

The State is concerned about the potential migration of Quota Share (QS) between ports within an IFQ regulatory area and the effects of this migration on the individual angler (charter client). QS migration could affect the price of halibut charters to the individual angler, the availability of charter services in specific ports.

If the majority of QS was transferred from a port anglers wishing to fish for halibut from a charter vessel in that port could see increased charter fees from the few remaining charter businesses in the port that still had QS. If the transfer was drastic enough anglers could be precluded from a charter trip due to lack of availability of charter vessels.

Communities around ports with established charter vessel businesses could also suffer economic hardships if a significant portion of the QS was transferred to another location. Without an adequate charter fleet available to fish for halibut anglers might choose to fish from another port community that contained more charter businesses and offered lower charter prices. This transfer of clientele could negatively impact the charter infrastructure within these communities (hotels, restaurants, tourist shops, etc.).

While the State understands and agrees with the need for some flexibility in the movement of charter QS, it does not support the wholesale migration of QS from one port to another. This could result in prohibitively high charter trip costs and/or a loss in availability of anglers to access charter trips at that port. The State has not determined the best tool for managing such migrations, other than they might be incorporated into local area management plans within a IFQ regulatory area.

4.6 Conclusions

Alternative 1, Status Quo

- The status quo regulations are intended to limit the harvest of recreational anglers using the services of the halibut charter fleet to 13.05% of the combined commercial and charter quota in Area 2C and 14.11% of the combined 3A quota. Upon reaching that level of harvest, additional management measures would be implemented beyond the management measures currently in place, to help prevent harvest in the guided halibut fishery from exceeding the specified amounts.

- As of 1999, the GHL amounts were above the reported charter fleet catch in both Areas 2C and 3A. The Area 2C charter catch would need to increase by about 36% over the 1999 harvest levels before any of the additional management measures outlined in GHL program would be implemented. The charter sector in Area 3A can grow approximately 37% over 1999 harvests before the GHL will trigger management measures.

- Projections of when the GHL will be reached are not provided given uncertainties associated with historic harvest trends and future demand for charter trips.

- The status quo does not guarantee that anglers using the services of the guided halibut fleet will be prevented from exceeding the specified percentages, since only the implementation of prohibiting captains and crew from retaining halibut and a one fish bag limit and are expected to slow or reduce harvest rates. Under the status quo captains and crew will be prohibited from retaining halibut when harvests exceed the stated GHL by at least 10%. The one fish bag limit would be implemented when the GHL is exceeded by 50%.

- It is possible the that the one fish bag limit could decrease removals below the GHL target levels if angler demand does not increase.

- Status quo regulations do not limit entry into the guided halibut fleet. So while the fleet's catch is intended to be limited, there is no protection from additional competition.

- Anglers using charterboats will likely experience lower consumer surplus if the GHL becomes a constraint to halibut guides.

- In the Cook Inlet area, estimates of charter angler's average daily fishing expenditures for Alaskan ($141 - the charter itself cost $128) and non-Alaskan ($208 - the charter itself cost $142) residents are closer to being equal than the average daily travel and living expenditures for Alaska ($44) and non-Alaska ($101) residents.

- About $19.3 million were spent as a result of charterboat fishing for halibut in the Cook Inlet off the Kenai Peninsula, during 1998. Of the $19.3 million, $4.6 million (24 percent) were spent by Alaskan

residents and $14.7 million (76 percent) by non-Alaskan residents. About 81 percent of the money spent in Alaska was spent within the Kenai Peninsula.

- In 1998, there were 1,085 vessels that participated in the ADF&G logbook program with saltwater bottom fish activity (581 in Area 2C and 504 in Area 3A). That number increased to 1,108 in 1999 (588 in Area 2C and 520 in Area 3A), with approximately 350 of those vessels being unique to 1999, indicating considerable entry/exit in this fishery from 1998-1999. No attempt was made to determine how many of those were 'full-time' halibut charter operators.

Alternative 2. Incorporate the charter sector into the halibut IFQ program

Issue 1

- If the Council were to select Option 2, the percentage of the combined quota allocated to the charter fleet would decrease (about 18%) in Area 2C and (about 30%) in Area 3A, compared to Option 1 (the current GHL allocation). The opposite impact, in absolute pounds, would be realized by the commercial sector where 228,000 more pounds would be allocated to the commercial sector in 2C and 1.06 M more pounds in 3A, based on the projected 2001 combined CEY. At an ex-vessel price of $1.88/lb, the average price over the years 1996-98, these poundage levels equate to shifts of about $428,700 in Area 2C and $1.99 M in Area 3A.

  If the Council were to select Option 3, the percentage of the combined quota allocated to the charter fleet in Area 2C would decrease (about 20%) compared to Option 1 (the current GHL allocation) and (about 3%) compared to Option 2. The opposite impact, in absolute pounds, would be realized by the commercial sector where 257,000 more pounds would be allocated to the commercial sector compared to Option 1 and 28,500 more pounds compared to Option 2. At an ex-vessel price of $1.88/lb, these poundage levels equate to shifts of about $483,000 and $53,500, respectively. In Area 3A, selection of Option 3 would reduce the charter allocation relative to Option 1, but increase the charter allocation relative to Option 2. Thus, under Option 3 in Area 3A, the commercial sector would realize a gain of 695,000 lbs compared to Option 1 and a reduction of 362,300 lbs compared to Option 2 based on the 2001 CEY. These poundage changes represent shifts of $1.31 M and $681,000, respectively.

- Changing the allocation percentages results in equal poundage shifts between the commercial and charter sectors. Larger overall allocations to a sector will result in members of that sector being issued more IFQ in a year. The increases (or decreases) in pounds a member of the sector will be allocated are proportional to the change in overall allocation. So, if the sector is allocated 10 percent less of the CEY, the allocation to each member of that sector will decrease by 10 percent.

- The impacts on the processing sector of adding charter IFQs are unknown. If quota flows into the commercial sector as a result of changes in the charter allocation or through transfers then the processors of commercially caught fish will likely benefit from the charter IFQ program. If quota flows into the charter sector, commercial processors will likely be disadvantaged while processors of sport caught fish would be better off.

- Custom processors in Homer often charge about $0.75 per pound for normal shrink wrap and freezing orders and $1.00 per pound for flash freezing and shrink wrap. The gross margin estimated for commercial halibut processing at the first wholesale level in Areas 2C and 3A ($0.89 to $0.95 per pound) fell within the range presented for the custom processors (Council, 1997). Therefore, quota

movement between commercial and charter operators may not substantially impact the processing sector overall (at-least through the first wholesale level of the commercial sector), but would change the distribution between the two components of the processing sector.

- Alaskan residents taking halibut charter trips spent $8.15 per day on fish processing. Non-residents paid $42.84 per fishing day to have their catch processed.

- If 50% of the charter allocation is fixed at a poundage equal to the initial allocation under the suboption, the charter sector would be allocated 21.17% of the combined quota in years that it is reduced to half of the initial allocation (based on a initial allocation of 14.11%). If the quota increases by 50% the charter share would only be 11.76% of the combined quotas.

- Implementing an IFQ program for halibut will likely increase costs for halibut charter operators to reflect the opportunity cost of holding quota shares. Longer term, however, operating costs may decline under an IFQ program. Thus, the impact of an IFQ program on charter trip prices is indeterminate.

- Changes in the charter fishery that allow charter operators to use less halibut per client will likely reduce the benefits anglers derive from the trip. It may also place more pressure on other species harvested by the charter fleet (i.e., salmon, Pacific cod, rock fish, ling cod, etc.)

Issue 2

- The current U.S. ownership requirements to hold commercial halibut IFQ are linked to an old vessel ownership definition, the Council may wish to consider updating the U.S. ownership requirements for holding quota in the commercial sector and implementing the same requirements in the charter sector. Updating the commercial ownership requirements may require "grandfathering" corporations currently holding quota.

- In Area 2C there were 412 vessel owners listed in the 1998 logbooks and 459 in 1999. In Area 3A there were 434 vessel owners in 1998 and 465 owners in 1999.

- Currently data does not exist to determine bare vessel leases. However, the RAM division has indicated that those issues can be resolved at the time of initial allocation and the Council should not consider the current data limitations as insurmountable when making a decision on whether to include bare vessel lessees in the initial allocation.

- While granting harvest rights to vessel owners and lessees seems to mirror the path taken in the commercial IFQ fishery, one noteworthy distinction is that the principal harvesters in the charter fishery are anglers, and not vessel owners or lessees. While charter operators are associated with the harvesting 'sector' in the guided sport fishery, their role up until now has been one of providing guiding services to anglers. Like the commercial IFQ program, charter operators would help enforce the sector's TAC under an IFQ program. In addition, charter operators have an incentive under and IFQ program to reduce costs and promote stewardship of the resouce.

Issue 3

- The best estimates of the number of owners that will qualify based on logbook reports in 1998 and 1999 (Option 1) are 322 in 2C and 333 in 3A. The number of vessel owners that appear to qualify

under Option 2 (logbook reports in 1998 or 1999) are 539 in Area 2C and 568 in Area 3A. These numbers are not expected to change drastically if bare vessel lease holders are added to list of persons qualified to be allocated quota, but since data are not available for lease holders those estimates cannot be made.

- Options 3 -7 require tracking persons across various data sets that have been developed for the purpose of tracking vessels, which given the person identifiers in the data is not possible. However, each of the alternatives builds from the criteria specified for either Option 1 or 2. Therefore the number of qualified vessel owners in Options 3, 5, and 7 will be less than 539 in 2C and 568 in 3A, and Option 4 and 6 will be less than 322 in 2C and 333 in 3A.

- The Council is (Alternative 3) also considering the possibility of implementing a moratorium on new entry into the charter fishery, if it elects not to proceed with IFQs. If the same qualification criteria were selected for a moratorium program as used to determine who would qualify for QS under Issue 3, then the numbers owners (or vessels) presented in this section would also be our best estimates of who would qualify.

- The Council opted not to include any provision for "unavoidable circumstances" under the commercial halibut IFQ program. Its rationale was that: (1) one could qualify with only one landing over a three year period and (2) QS awards were based on the best five of six or seven years (for sablefish and halibut, respectively). Thus, any temporary "unavoidable circumstance" was accommodated. However, a provision to recognize "unavoidable circumstances" (in lieu of actual recorded fishing activity) as a way to gain eligibility for initial issuance of Quota Shares (QS) in the charter IFQ program could be included in the eligibility criteria. Generally speaking, if an applicant who would not otherwise be eligible for QS (or the amount s/he feels s/he is entitled to) can make a special showing to NMFS that s/he would have fished (provided charter opportunities) but for some "unavoidable circumstance," credit for the activity could be hypothecated and the QS issued.

- One problem with allowing "unavoidable circumstance" claims is one of trying to limit how many such claims are made. Because they are: (1) (by definition) unique to each applicant; (2) (in most cases) they can only be proven in an administrative hearing; and (3) resolving such claims can be both time- and cost-consuming.

- If the Council moves forward with a hardship provision they must also consider whether to issue interim (non-transferable) QS/IFQ to an applicant during the pendency of final agency action on her/his application. According to NOAA General Counsel, issuing interim QS/IFQ is not required in this program (unlike the LLP hardship program, for which federal licensing existed prior to the imposition of the LLP requirement, the charter fishery was not a federally-licensed activity), so whether to provide for interim QS/IFQ is entirely discretionary.

Issue 4

- The Council is considering two general formulas for allocating QS to the charter fleet. Given the current data limitations it is not possible to provide estimates of quota share distribution for either option. Instead they are discussed in a general terms. While this will not provide the Council and members of the public the point estimates that they would prefer, it should provide a general understanding of the impacts of the options. This method may also expand the range of the options that the Council may consider at the time of final action. Because the issues are discussed in a

general sense, the Council may feel that they have adequate information to expand the percentage ranges considered under the two options.

- Option 1 would base a person's initial allocation on reported logbook landings as well as participation in the 1995-97 fishery. This option results in persons with large logbook catch histories being issued more QS than they would under Option 2. Persons with relatively small logbook histories would receive a smaller QS allocation under Option 1 compared to Option 2. This results from Option 1 more heavily weighting logbook history.

- Depending on how Option 1 is calculated, there could be QS that is not assigned to a person through the initial allocation formula (the example in the document would result in 21% of the QS not being allocated). The Council would then need to determine how that quota should be allocated. Suggestions that have been proposed include using it for hardship cases, allocating it proportionally to each person based on their allocation, or dividing it equally among the qualifiers. The problem with this approach is that the amount of the remainder will be unknown until the application period. If the Council does not want all of the QS allocated through this formula, they could simply select how much of the charter sector's allocation they want to assign through the formula. The remaining amount could then be allocated as they wish.

- Option 2 places less weight on the logbook catch history. Therefore, the size of the allocations are more closely clustered around the mean than under Option 1. The larger the percentage of the allocation assigned to Part A of the formula (equal allocation to all qualifiers) the more uniform the overall allocation.

- A suboption to include released halibut in the logbook harvest amounts is being considered. This option was developed prior to the options to split the allocation between the commercial and charter sector being selected.

- Eleven logbook records indicated that over 100 halibut were released on a trip. A total of 1,400 logbook entries (trips) indicated that the total number of halibut caught exceeded the retention limit by at least 20 halibut. Crediting individuals with large numbers of released fish would disadvantage operators with catch histories that were close to the legal retention limit. In some cases, the same vessels consistently reported large numbers of released fish. These operators would receive large QS allocations based on released halibut, which may unfairly inflate their allocation .

- Catch and release fishing will not count against the QS holder's quota balance, prompting the question of whether or not it is appropriate to use caught and released fish as the basis for calculating an individual's initial allocation.

Issue 5 (From Wilen and Brown)

- Most economists would argue that the very fact that landlords and tenants do enter into voluntary arrangements including sharecropping, renting and leasing is prima facie evidence that both parties gain. Restricting voluntary market arrangements would involve foregoing these real private values, and the issue is whether there are externalities or income distribution consequences that are significant enough to prohibit mutually beneficial exchange.

- Leasing allows a temporary reallocation of the use rights of productive assets from those who place relatively lower values on the rights to those that place relatively more value on them. These

differences in relative values often reflect real differences in the ability to generate profits from rights. In addition, they sometimes simply reflect differences in the strength of individual preferences for the lifestyle and other non-pecuniary benefits associated with direct use of the asset.

- Over the long run, an initial allocation pattern that is inefficient cannot be sustained and some consolidation and reconfiguration into economically viable units will inevitably occur.
- In addition to the transition benefits associated with being able to reconfigure productive quota rights immediately (lease quota), there is another important information benefit associated with allowing lease markets to develop. That benefit emerges because lease prices and permanent quota prices are inextricably linked, in the sense that lease prices "inform" permanent quota markets about the long-term value of a quota.

- Fisheries that do restrict leasing (Alaska's commercial halibut system stands out as one) do so over fears of the "absentee landlord" syndrome. The policy decision on whether to allow leasing must weight the economic benefits of allowing transfers with the social costs that may arise as a result of transfers.

- Arguments against allowing free transfer across sectors involve distributional concerns. For example, access to the resource may be determined to be more important than trying to extract the highest value from the resource. In the charter halibut case, proponents of restrictions that inhibit transfers from the charter sector to the commercial sector are fearful that such transfers would be likely, and that as a consequence, sports anglers' access to the resource would be restricted.

- **Under initial conditions**, that the incentives to transfer large amounts of quota from the commercial to the charter fleet are not significant. The need for quota by the charter sector is trip-demand limited, and the current infrastructure has more or less expanded to the point where there isn't much additional profit to be gained by having marginal fish allocated to the charter sector.

- Overall, then, the implication of allowing transfers between sectors would be at least **temporary** pressures to shift quota, most likely from charter to commercial sectors. It is important to point out, however, that whether these changes actually materialize will depend upon how fast the charter industry reconfigures under the quota system.

- In the long run, we would anticipate quota to agglomerate in units that minimized costs of operation. This would likely include matching vessel size, firm capacity, and utilization rates to different markets in different geographic regions.

- The direction of transfer flow is not easy to predict and it is likely to change as the TAC is adjusted upward and downward in any case. For example, with the generous TACs in place currently, it seems likely that the charter sector would not place a high value on quota at the margin, and hence any transfers under current condition would flow from the charter to the commercial sector. With excess charter quota supply, this would not result in any substantial loss of consumer surplus but a gain in overall efficiency as quota was put to financial use in the commercial sector. On the other hand, with a much tighter constraint associated with a lower TAC, the marginal value of quota to the charter sector would rise, and conceivably to a point that could induce transfers from the commercial sector. In this case, a policy that allowed transfers would not only increase aggregate economic efficiency from the resource, but it would increase the surplus enjoyed by anglers who would have been constrained under a system without transfers. This would come about with some corresponding change in consumer surplus enjoyed by consumers of commercial-caught halibut.

- Since block restrictions create lower QS prices in the commercial sector, the charter fleet is most likely to purchase small blocks of QS from the commercial sector if any transfers from the commercial to the charter sector are made.

- Since vessel size classes C and D appear willing to pay the most for quota, we would expect that most transfers would take place between charter holders and owners in these classes.

- Limiting the absolute number of transactions per year (to a single transaction or any other number) would clearly be an efficiency-reducing restriction. There are various reasons for wanting the flexibility of lease and/or permanent transfers. Some of these reasons involve the need for short-term transfers to meet short-term production exigencies. This flexibility would be hampered by limiting the number of transactions per year allowed, and it is not clear what might be gained, unless a slowing of the process is desired.

- A minimum transfer rule might be enacted in order to save on administrative and transactions costs. However it is easy to see, for example, charter quota holders needing to transfer 5-10 fish to cover the last few days of a season. Again, the general rule holds here: any restrictions that block free trade in quota (whether on a short- or long-term basis) reduce the potential values that the quota system makes possible.

Issue 6

- The only persons who would be allowed purchase QS are those already involved in this fishery in addition those qualified as guides in the State of Alaska. A suboption would narrow the list of qualified purchasers to persons holding a valid USCG license in addition to the other requirements This suboption was included to help ensure that the commercial requirements for holding QS could not be as easily circumvented. However, if the regulations are written such that quota can only be fished in the commercial fishery by individuals eligible to purchase commercial quota, this requirement would likely be unnecessary.

- Should the Council wish to select the suboption for another reason, language would need to be included that would indicate how corporations would be treated. Corporations can not hold USCG licenses, and therefore would not be eligible to purchase charter QS or IFQ as the suboption is stated. This may not be the Council's intent given that there are valid reasons for corporations, limited liability partnerships, or other such entities to be the legal owners of QS.

- Limiting the number of people that are allowed to purchase quota may decrease the QS value, if those persons excluded from purchasing QS place the highest value on it. However, limiting the people that are allowed to purchase QS also helps to ensure that the fishery remains in the hands of a particular class of people. In making this decision, the Council must decide if the benefits gained from limiting quota ownership outweighed any losses in quota value that may result from allowing more people to purchase QS.

Issue 7

- Capping use at levels below the economic scale necessary to maximize benefits will forego efficiency gains. On the other hand, the agglomeration issue is so politically charged that those benefits may not be worth pursuing in the larger arena. In the end, the cap issue is probably more an income

distribution issue than an efficiency question and hence there is little that economic analysis can add to the question.

Issue 8

- The analysis concludes that Option 1 (12-line limit in Area 3A) or any line limit does not address the problem statement.

- Allowing overages and underages in the halibut charter fishery could provide charter operators more flexibility in managing their business, and should result in few negative impacts on the commercial fleet. The overage and underage provisions in this case would serve as a mechanism to reduce the need for charter operators to lease quota, since they would be allowed to "borrow" a small amount from their allocation the next year. However, there may be limited need for an overage policy (especially if the permit is enumerated in numbers of fish), as the exact amount of fish can be easily determined and the permit holder will know exactly where s/he stands with respect to the allowable catch. "Unused" IFQ (fish) remaining at the end of the charter season could be transferred to a commercial operator or to himself as a commercial operator, so no real underage would need to exist and the charter QS holder could receive some compensation for unused IFQs. Option 2 (10% rollover provision) may not be worth the associated administrative and enforcement burden. There is no data to analyze whether 10% is an appropriate underage or overage adjustment for this fishery.

Issue 9

- If an IFQ program for the charter sector is implemented, all QS would be issued in **UNITS**, not pounds or numbers of fish.

- Nearly all recreational fisheries are managed based on numbers, rather than weight, of fish landed. Limits on pounds of fish landed are rarely used as a regulatory mechanism in recreational fisheries, because of the higher number of vessel landings and dispersed nature of the fishery.

- Because sport-caught fish are not bought or sold, it is impractical and expensive to have enforceable weigh stations at all sites of sport landings.

- Allocating halibut in numbers of fish may benefit charter operators that harvest larger halibut, on average. Charter operators that harvest smaller halibut, on average in the future, would be disadvantaged under this system.

- If fish size depends on the charter operators ability to run to better fishing grounds further from shore, allocating quota in terms of number of fish would tend to benefit operators with larger faster boats. Charter operators that catch smaller fish that the average (perhaps those with smaller - slower boats fishing closer to the harbor) will receive a smaller allocation if it is based on fish rather than pounds. This may lead to charter operators upgrading their boats to essentially increase their allocation in the short run. If everyone follows this strategy, the average halibut size will increase.

- One cost of specifying charter IFQs in numbers of fish rather than pounds is that dockside monitoring would have to be done at major charter ports on a consistent basis to obtain an average weight of halibut harvested by charter clients. This would be an expensive program to cover all major charter ports in Areas 2C and 3A.

Issue 10

- Staff recommends trip-based reporting , but offers an additional option. Because some charter operators take two "trips" in any given day, staff suggests Council consideration of another option: Once every day in which a "trip" occurs. NMFS Enforcement has indicated that daily reporting may be acceptable. Staff also recommends continuation of the ADF&G logbook program, as it addresses state management needs beyond federal halibut management.

- Staff suggests requiring a reporting station in every city and charter boat location to accurately weigh every halibut caught may be unwieldy, intrusive, and probably unnecessary (especially if the charter IFQ permit is issued in numbers of fish). It would undoubtedly increase the cost of doing business for a number of charter operators.

- If the permits are issued in numbers of fish, simply reporting (electronically, with waivers from that requirement available under certain circumstances) on a daily basis should be adequate to meet the goals of harvest monitoring on a real-time basis and maintaining IFQ account balances.

Issue 11

- Since one of the main purposes of the proposed community set-aside is to reduce an economic barrier to entry into the charter industry for target communities, the value of the potential economic barrier created by the charter IFQ program is estimated. In Area 2C, an estimated 900 lbs and 3,000 lbs of halibut are required to support start-up and full-time charter operators, respectively. In Area 3A, an estimated 1,000 lbs and 6,000 lbs of halibut are required to support start-up and full-time operators, respectively. These values are somewhat lower than the halibut resource needs estimated in the Coalition proposal of 2,000 lbs and 10,000 lbs for start-up and full-time operators, respectively. Using mean 1998 commercial halibut QS transfer prices of $10.14 and $8.55 for Areas 2C and 3A, respectively, as an indicator of halibut charter QS prices, start-up charter operators may need to purchase $9,000-$19,000 and full-time operators may need to purchase $30,000-$94,000 worth of halibut QS (assuming no halibut QS units are received in the initial allocation).

- The lack of charter businesses in certain target communities despite growth in the industry during the 1990s suggests that other significant barriers to entry may exist for these communities. Other potential economic barriers include the cost of a boat and other fishing equipment, cost of property, and initial financing for operating expenses during the start-up phase. Based on data from the ISER (1999) guide and charter survey and adjusting for inflation, the estimated cost per boat ranges from $40,000-$67,000 and the estimated overall equipment costs range from $66,000 to $125,000. Annual operating expenses are estimated to range from $29,000 to $106,000 (adjusted for inflation). Since most of these expenses would be incurred even if no client demand materializes, financing to support operations during the start-up phase represents another potential barrier to entry.

- Other factors that may have limited past development of charter businesses in some of the 37 target communities and may represent significant barriers to entry include the following: (1) remote location of community; (2) lack of road access; (3) lack of scheduled flights or ferry service; (4) lack of boating facilities; (5) lack of other recreational opportunities; (6) lack of food and lodging amenities; (7) lack of tourism; (8) community prefers to limit tourism; (9) not especially scenic; (10) proximity to other port; (11) lack of financial resources; (12) reluctance to take financial risk; (13) lack of business experience and skill; (14) and lack of a USCG license. Of all factors listed, the remoteness of the community is likely the factor most limiting to the development of charter businesses in the 37

communities. Even if packaged with transportation and lodging, halibut charter fishing from a more remote community likely appeals to only a small percentage of clients.

Option 1

- If halibut quota is not set aside for communities, some Gulf communities that are still developing halibut charter businesses may have difficulty achieving long-term viability under the charter IFQ program. This may be due, in part, to the fact that certain smaller Gulf communities may receive fewer halibut QS in the initial allocation (but also due to the barrier to entry created by the IFQ program). For communities (among the 37) that have existing charter businesses, including charter vessel owners and bare vessel lessees as initial recipients of halibut QS (Issue 2) does not necessarily disadvantage members of such communities. Potential issues residing in the target communities are likely more sensitive to the choice of qualification criteria (Issue 3) and formula for determining the size of the distribution (Issue 4). If potential issues in target communities have below average ADF&G logbook harvests (in 1998 and 1999) and relatively few years of operation, criteria and distributions that place less emphasis on logbook harvests and longevity may ensure that such issues receive amounts of QS reflective of their market share.

- In general, retention and acquisition of halibut charter QS would be facilitated by (1) restrictions that prevent individuals from transferring QS permanently out of the communities, and (2) provisions that would make it easier for community members to acquire QS. Issue 6 includes a suboption to require the recipient of any QS transfer to hold a USCG license; this requirement may be overly restrictive from the perspective of the 37 communities targeted for the set-aside since a charter business owner may wish to hire a USCG licensed skipper.

Option 2

- The community set-aside has the potential to reduce net economic benefits to society if set-aside quota remains unharvested, reducing supply in the charter and/or commercial sectors (depending on source of set-aside). The Coalition proposal to roll back uncommitted set-aside quota to the general IFQ pool for the upcoming season, in theory, provides a conceptual mechanism for minimizing the potential for unharvested quota. In addition to the pre-season "roll back" feature, the Council requested that a phase-in approach be considered. By itself, a phase-in may be less effective than the pre-season roll-back. The phase-in, however, may help to reduce uncertainty for the charter and/or commercial sectors.

- Even if set-aside quota are fully utilized, the set-aside will likely reduce net economic benefits due to changes in industry costs. Costs for come charter operators in major ports (Homer, Juneau, etc.) may rise if the reduction in the charter sector's TAC due to the set-aside requires such operators to lease or purchase additional QS. Cost increases may cause some marginal charter operators to leave the industry, reducing supply and increasing charter trip prices for clients in major ports. If the TAC is taken partially from the commercial sector, a decrease in commercially supplied halibut would result. The supply decreases in the charter and commercial sectors would reduce net economic benefits to society. These net benefit reductions may be partially offset by an increase in the availability of charter trips from remote communities. Since charter trips from remote communities are highly differentiated products (i.e., offer clients a more unique charter trip experience), and since such trips may not represent good substitutes for charter trips from major ports, increases in the supply of remote-community charter trips may not truly offset reductions in the supply from major ports. Thus, an overall reduction in net economic benefits is likely to result.

- The community set-aside would likely remove an economic barrier to entry into the charter industry for participants. By doing so, the set-aside essentially preserves the existing cost structure but does not necessarily create any new opportunities for target community members. As a result, it is unlikely that the number of new charter businesses developed in the target communities would be any higher than would develop naturally if the charter IFQ program is not implemented. By removing an economic barrier for some new entrants, the community set-aside may give participants a competitive advantage over other new entrants in certain situations. This is most likely to occur between two new entrants (one eligible for set-aside quota, the other not eligible) if both are competing for the same clientele. It is also possible that, without clear requirements for residency, the community set-aside may create a loop-hole that allows entrance into the industry by individuals that otherwise would not choose to live in the remote target communities.

- The marginal administrative cost of adding communities as potential recipients of halibut charter quota under the existing IFQ program is expected to be minimal. The cost of maintaining a community management entity could be recovered from individual community quota recipients through a fee-based program, but there may be more substantial start-up costs associated with establishing the proposed management structure that would likely be incurred by the community as a whole.

- Depending on the magnitude and the source of the set-aside, the initial allocations under Issue 1 for the charter and commercial sectors may change. Under the 2001 combined commercial and charter halibut quota, a 0.5 - 2.5% set-aside would result in an allocation of 49,150 - 245,750 pounds to target communities in Area 2C and 123,230 - 616,150 pounds in Area 3A. These values represent maximum potential annual allocations; the amount set-aside would ultimately depend on the amount requested by each community, subject to a cap.

  The initial allocations to the charter and commercial sectors are defined under Issue 1, Options 1, 2, and 3. Issue 1, Option 1 would allocate 13.05% and 14.11% of the combined commercial and charter halibut quota to the charter sector in Areas 2C and 3A, respectively. Option 2 would establish a charter allocation of 10.73% in Area 2C and 9.82% in Area 3A, and Option 3 would establish a charter allocation of 10.44% in Area 2C and 11.29% in Area 3A. These percentages were applied to the estimated 2001 combined commercial and charter halibut quota of 9.830 million pounds in Area 2C and 24.646 million pounds in Area 3A to determine the initial allocation to the charter sector under each option.

  Area 2C: Under the charter allocation proposed under Issue 1, Option 1 (13.05%), the proposed range for the set-aside, and all of the suboptions for the source of the set-aside, the commercial sector's initial allocation could be reduced by a range of 0.3 - 2.5% (24,575 - 213,673 lbs), and the charter sector's initial allocation could be reduced by a range of 0.5 - 19.2% (6,416 - 245,750 lbs). Under Option 2 and Option 3, the charter sector's initial allocation decreases to 10.73% and 10.44% of the combined quota, respectively. The impact of the set-aside under Options 2 and 3 results in slightly greater reductions to the initial charter allocations compared to those projected under Option 1. The impact of the set-aside on the commercial sector's initial allocation remains about the same under Options 1, 2, and 3, on a percentage basis.

  Area 3A: Under the charter allocation proposed under Issue 1, Option 1 (14.11%), the proposed range for the set-aside and all of the suboptions for the source of the set-aside, the commercial sector's initial allocation could be reduced by a range of 0.3 - 2.5% (61,615 - 529,211 lbs), and the charter sector's initial allocation could be reduced by a range of 0.5 - 17.7% (17,388 - 616,150 lbs). Compared to Option 1, the existing charter sector's allocation in Area 3A would *decrease* to 9.82%

under Option 2 and decrease to 11.29% under Option 3. The impact of the magnitude of the set-aside range under Options 2 and 3 results in slightly greater reductions to the initial charter allocations than those projected under Option 1. The impact of the set-aside on the commercial sector's initial allocation remains about the same under Options 1, 2, and 3, on a percentage basis.

- The magnitude of the set-aside also has implications for the 37 target communities in terms of the amount of halibut available to individuals in the communities and the extent that the allocations are enough to support start-up or mature charter operations. Using assumptions developed in this analysis to estimate the halibut quota needs of a start-up or mature charter operation in the 37 target communities, the proposed set-aside range could support 2 - 12 start-up or 1 - 4 mature charter operations in each Area 2C target community. Using the same assumptions, the set-aside range could support 9 - 44 start-up or 1 - 7 mature charter businesses in each Area 3A target community. The Coalition proposal estimates greater quota needs for both start-up and mature charter operations based on anecdotal evidence; using these assumptions would necessarily decrease the number of businesses the set-aside range could support in each area.

- The long-run implications of the community set-aside depend on whether an explicit sunset provision is included. While participants in the community program are expected to purchase QS over time, a stable number of new entrants residing in target communities may continue to apply each year due to natural turnover in the industry. If so, the set-aside effectively represents a permanent allocation to the communities. Alternatively, if the program sunsets in 5 or 10 years, the effects of the set-aside would partially reverse. The choice between 5 and 10-year sunsets is more of a policy call but a 10-year program may provide more time for the goals of the community set-aside program to be realized. A suboption to allow participants at the time of the sunset to continue under the program guidelines would effectively phase-out the program.

- The community set-aside may impact halibut QS values and introduce an additional source of instability. If the underlying TAC is reduced each year by the amount of the set-aside, QS prices may decline since each unit represents fewer pounds. This price decline may be partially offset by an increase in IFQ prices (per pound), depending on the elasticity of demand. A reduction in QS values may adversely impact commercial halibut QS holders who have purchased QS since the initial allocation. Also, the decrease in QS prices may diminish their value as collateral for securing loans. The preseason roll-back may cause IFQ/QS prices to fluctuate due to uncertainty in the upcoming year's TAC. QS prices are likely to be more stable, in the short-run, if a phase-in approach is adopted and, in the long-run, if a sunset provision is included.

Alternative 3. Moratorium

The moratorium alternative uses the same options for qualification as the proposed IFQ program. Therefore the same number of people would be included under either program. However under a moratorium, persons with low catch history would be allowed to increase their catch share without compensating other members of the charter sector.

It is assumed that the moratorium would not replace the GHL as the IFQ program would. Under a moratorium, the fleet would still be limited by the GHL caps so the charter fleet's growth would be constrained, depending on the effectiveness of the GHL.

A moratorium on new vessel entry under a GHL program would likely have minimal impacts on guided anglers, if the program includes operators will relatively small levels of catch history. Guided anglers would

be more limited by the GHL in this case than they would by the moratorium, because the number of charter seats available on any given day would most likely be greater than the demand. What could limit a guided angler's willingness to hire a charter captain are the constraints imposed under the GHL.

Overview of Impacts to Guided Anglers

At the February 2001 meeting, the Council requested that the analysis include a section that summarizes the implications of the alternatives for the angler (guided and unguided). Thus, a separate section has been prepared which summarizes the implications of the three alternatives: (1) the GHL management measures (status quo); (2) the charter IFQ program; and (3) moratorium on charter industry participants. This section also considers changes in angler utility/welfare, impacts to unguided anglers and whether quota shares should be issued to anglers rather than charter operators. The main conclusions follow.

Impact on Consumer (Angler) and Producer Surplus

- The alternatives under consideration have the potential to impact the costs, availability and prices of halibut charter trips. These impacts are discussed qualitatively in the context of potential changes to the consumer and producer surplus (i.e., angler benefits and charter operator profits). No attempt is made to quantify the potential magnitude of the impacts because the data required to make reliable estimates is lacking.

Impacts of the GHL (Alternative 1)

- The implications of this alternative for the guided angler depend on whether the GHL is or is not binding. Based on 1999 halibut harvest levels for the charter sector in Areas 2C and 3A, the GHL is not yet binding (the halibut charter harvest would need to grow or the halibut biomass would need to decline by 36-37%). To the extent that this growth occurs, the halibut charter industry may experience changes in its costs that may impact charter trip prices and the quality of the halibut charter trip experience. For example, if growth in the industry results in more crowding or increases localized depletion, charter operators may need to travel longer distances to reach suitable fishing grounds.

- If growth in the halibut charter sector increases to the point that GHL measures are triggered, guided anglers and charter operators would be impacted. Because GHL management measures are implemented in the season *after* the overage occurred, the industry adjustment would occur in a step-wise fashion. The management measures include a combination of trip limits, skipper/crew harvest limits, angler harvest limits and a one-fish bag limit in August. Overall, the GHL and associated management measures are likely to increase costs and introduce more variability in the charter industry in years following an overage. To the extent that the GHL results in a reduction in supply and higher charter trip prices, benefits to anglers are reduced. Also, if the GHL management measures fail to keep the charter sector harvest below the GHL, the commercial fishing sector's TAC will be decreased.

Impacts of the Charter IFQ Program (Alternative 2)

- The staff has been presented with several divergent views on the potential impacts of an IFQ program. Under one set of assumptions, charter trip prices under an IFQ program would rise in a manner similar to what would occur under the GHL (assuming a binding GHL or TAC) but efficiency gains under an IFQ program would expand profits for charter operators. An alternative view developed by Dr. Wilen (see Appendix V) suggests that charter trip prices are constrained by macro-economic factors and the availability of substitutes for both resident and non-resident anglers. Instead, Wilen suggests that the main effect of an IFQ program is to allow and encourage more

efficient charter operations with the resulting cost-savings reflected in the market price of charter quota shares. Assuming first that no transfer between sectors are allowed, the impacts differ depending on whether the initial charter sector TAC is binding or not binding.

TAC is Not Binding:

- Upon implementation of the charter IFQ program, costs in the charter industry will rise for at least two reasons: (1) there is an opportunity cost associated with holding quota shares; and (2) charter operators are not likely to receive the exact amount of QS needed to support their normal business activity. In the short run, if charter operators are not able to raise prices sufficiently to offset their higher costs, some charter operators will reduce their supply of charter trips. To the extent that supply decreases, the price of charter trips will rise. The magnitude of the price increase will depend on the price elasticity of demand. Since demand is more inelastic for non-resident than for resident anglers, charter trip prices may rise more for non-resident than for resident anglers (for a given reduction in supply).

- In the longer run (i.e., next season), adjustments in the industry are likely. Some marginal charter operators may choose to exit the industry and sell their quota shares, resulting in industry consolidation among the lower-cost charter operators. Anglers are also likely to make adjustments since a rise in charter trip prices may make other substitute recreational activities (for residents and non-residents) relatively more attractive. As a result, demand for charter trips may decline. Compared to the GHL (when the GHL is not binding), benefits to consumers are reduced under an IFQ program if the new equilibrium reflects higher prices and a lower quantity of charter trips. Charter operators, however, capture resource rents reflected in the value of their QS holdings. Finally, if transfers between sectors are not allowed, a portion of the charter sector's TAC would remain unharvested, resulting in a reduction in net economic benefits in the commercial sector.

Charter Sector TAC is Binding:

- If the charter sector's TAC is binding, the charter sector as a whole has fewer QS than needed to maintain its previous activity. If no transfers between sector's are allowed, the sector's TAC constrains the quantity of QS employed in the charter sector and intra-sector transfer prices are higher. In the short-run, costs rise for each individual firm and supply contracts. As a result of the reduction in supply, charter trip prices rise and the quantity of trips supplied is reduced to the amount corresponding to the sector's TAC. In the long run, industry consolidation occurs among the lower-cost charter operators, marginal costs for the industry decline and profits rise. In addition, demand may decline if other substitute recreational activities become relatively affordable compared to charter trips.

- Overall, if the TAC is binding and no transfers between sectors are allowed, benefits to anglers will decline (since prices are higher and quantity is constrained by the TAC). Compared to the GHL management measures, however, the IFQ program provides a more efficient mechanism for constraining the charter sector's harvest. In addition, cost savings realized by the charter sector are reflected in the value of quota shares. That is, an IFQ program allows charter operators to capture resource rents that are largely dissipated under the GHL management measures.

Impact of Transfers Between Sectors:

- Transfer restrictions are likely to have a significant impact on the price of quota shares (both sale and lease prices), which in turn impacts the magnitude of the opportunity cost of holding QS. The higher the quota share price, the higher the opportunity cost of holding QS. Transfers between the charter and commercial sectors will occur to the extent that initial QS prices in each sector differ. If charter

QS prices are initially higher, quota shares will flow into the charter sector and the sector's TAC will rise. Alternatively, if charter QS prices are initially lower, quota shares will flow out of the charter sector and the sector's TAC will decline.

- The price of quota shares will also depend on whether the charter sector's TAC is or is not binding. If the TAC is not binding, restricting transfers between sectors will suppress the value of charter QS. If the TAC is binding, restricting transfers between sectors may result in higher QS prices. This is because the TAC restricts the availability of charter trips, driving up the price of charter trips even though charter operator costs may remain the same or even decline. As a result, profits are higher which, in turn, are reflected in higher charter QS prices.

Implications of Issues 1-11:

- The implications of the various issues and options under consideration for the charter IFQ program (Alternative 2) depend largely on how the options impact the initial charter sector allocation (i.e., the TAC), quota share prices and industry costs. Several choices would help to mitigate the impact on guided anglers. For example, basing the initial allocation on 125% of the historical harvest (Issue 1, Option 1) would likely result in an initial charter sector TAC that is not binding. A less constraining TAC will reduce the impact of the charter IFQ program (the supply of charter trips is reduced less and charter trip prices rise less). Or, choosing qualification criteria (Issue 3) and a distribution method (Issue 4) that minimize the need for transfers *within* the charter sector would help minimize the impact on charter operator costs.

- The impacts of the choices for transfer restrictions (Issue 5) are highly dependent on whether the TAC is or is not binding. If the charter sector TAC is not binding, restricting transfers between sectors would help to keep QS prices low. On the other hand, if the charter sector TAC is binding, allowing transfers may help to keep QS prices low. In both cases, lower QS prices would result in lower costs for charter operators. Issue 9, concerning whether IFQs are issued in pounds or fish, does not directly impact charter operator costs but may be important to maintaining the quality of the charter trip experience for the guided angler. Finally, the community set-aside (Issue 11) would have a higher impact on the charter sector if the charter sector's TAC is initially binding. The set-aside, however, may help increase availability of charter trips from the more remote, coastal communities in the Gulf of Alaska.

Impact of the Moratorium (Alternative 3)

- Under the proposed moratorium, qualifying charter businesses would be eligible to receive a moratorium license which limits the number of vessels they could operate in the charter fishery. The number of licenses (which are transferable) issued in the initial allocation relative to the number actively used in the fishery would determine their value. If the number of licenses issued is in excess than the number required, the value of the license will be lower than if the initial allocation is tightly constrained. Based on the analysis provided in Section 4.3, it appears that the number of vessels likely to qualify under a moratorium would be greater than the number required to harvest the GHL. If so, it is likely that moratorium licenses values will remain relatively low and the cost of entry into the industry will not rise substantially. In addition, the GHL is likely to become binding before the moratorium would become binding. As a result, the implications of this alternative largely default to the implications of the GHL (Alternative 1). That is, until the GHL is binding, the charter fishery will continue to operate on an open-access basis. Once the GHL becomes binding, management measures are triggered that work to constrain supply and demand for charter trips. To the extent the GHL sufficiently slows the harvest by guided anglers, the charter fishery is not likely to reach the point where the moratorium becomes limiting.

Changes in Angler Utility/Welfare

- Changes in angler utility and welfare are the result of changes in the prices and/or attributes of a halibut charter trip. The types of trips that charter operators may offer could include everything from catch and release only trips to trips that try to maximize the pounds of halibut retained. A whole range of trips between the polar opposites that could be offered, including the clients only keeping fish that are under or over a predetermined weight. Whatever the type of trips that are offered, if they are marketed to the clients that value that type of trip, the utility of these clients would be higher than clients valuing another type of experience. Therefore under an IFQ program, charter operators may try to market specific trips to a more narrowly focused clientele or design different types of charter packages at various price levels. The price of the trip could be set to reflect the value of the halibut retained under an IFQ program.

Impacts on Unguided Anglers

- The impacts of a halibut charter IFQ program on the unguided halibut anglers are expected to be minimal. Implementing an IFQ program for the guided fishery will not limit the total amount of halibut unguided anglers are allowed to harvest. They will still be required to keep only two halibut per day, and that regulation will be in place regardless of whether or not the Council implements an IFQ program.

- Unguided anglers may be impacted indirectly in two ways. First, to the extent that fisherman who normally use guided services instead pursue unguided fishing activities, safety concerns may lead to stricter regulations for the unguided fishing industry. This is as likely to occur under a binding GHL as under an IFQ program since both programs have the potential to increase the price of charter trips. Secondly, a more rationalized charter fishery may reduce the number of charter vessels per day on the halibut grounds. This may occur if charter operators are able to improve planning and extent the length of the charter season. This would also reduce competition for port services between unguided anglers (that rent or own boats) and charter operators. These outcomes would benefit the unguided angler who uses the same fishing areas or port services.

Issuance of Quota Shares to Charter Operators vs. Guided Anglers

- Under the proposed charter IFQ program (Alternative 2), quota shares (QS) would be initially allocated to providers of charter services which meet certain qualification criteria. Allocation of quota shares to the guided angler, the actual harvester of the halibut resource, is not under consideration. This appears to be a departure from the commercial IFQ program because quota shares would not be allocated to the harvester of the halibut. Yet, there may be an economic parallel and rationale for allocating quota shares to the charter operator. Like the commercial IFQ program, under the charter IFQ program, the charter operator is responsible for staying within its individual allocation and helps to enforce the allocation for the entire sector. In addition, quota shares provide both an incentive and a reward to the charter operator for providing stewardship services.